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Before the

UNITED STATES POSTAL RATE COMMISSION

In the Matter of: POSTAL RATE AND FEE CHANGE

Docket No. R2000-1

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BEFORE THE
POSTAL RATE COMMISSION

- - - - - - - - - - - - - - - - - - - -X
In the Matter of: :
POSTAL RATE AND FEE CHANGE : Docket No. R2000-1
- - - - - - - - - - - - - - - - - - - -X

Third Floor Hearing Room
Postal Rate Commission
1333 H Street, N.W.
Washington, D.C 20268

Volume XIII
Thursday, April 27, 2000

The above-entitled matter came on for hearing, pursuant to notice, at 9:32 a.m.

BEFORE:
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HON. GEORGE A. OMAS, VICE CHAIRMAN
HON. W.H. "TREY" LeBLANC, COMMISSIONER
HON. DANA B. "DANNY" COVINGTON, COMMISSIONER
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C O N T E N T S

E X H I B I T S

PROCEEDINGS

[9:32 a.m.]

CHAIRMAN GLEIMAN: Good morning. Today we continue our hearings to receive testimony from Postal Service witnesses in support of Docket R2000-1.

Does any participant have a procedural matter to raise today?

[No response.]

CHAIRMAN GLEIMAN: If not, we will go on to the witnesses. We have three witnesses scheduled to appear today, Witnesses Plunkett, Eggleston and Kiefer.

Mr. Reiter, if you are prepared to, you may call your first witness.

MR. REITER: Thank you, Mr. Chairman. Our first witness this morning is Michael Plunkett.

CHAIRMAN GLEIMAN: I know it seems you like you go through frequently and shouldn't have to, but this is a different docket.

MR. PLUNKETT: So I am not under oath anymore?

CHAIRMAN GLEIMAN: You will be shortly, again.

Whereupon,

MICHAEL K. PLUNKETT,

a witness, having been called for examination and, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. REITER:

Q Mr. Plunkett, I am handing you two copies of a document entitled "Direct Testimony of Michael K. Plunkett on Behalf of the United States Postal Service," designated USPS-T-36. Was this testimony prepared by you or under your direction?

A Yes, it was.

Q And if you were to testimony here orally today, would your testimony be the same?

A Yes, it would.

MR. REITER: Mr. Chairman, I will hand those copies to the reporter and ask that they be entered into the record as the direct testimony of Michael Plunkett.

CHAIRMAN GLEIMAN: I would just like to note that there was a pause before Witness Plunkett answered your question about the testimony. I am not sure what that indicates, but I will ask if there are any objections?

[No response.]

CHAIRMAN GLEIMAN: I am just joking with you now. Don't get --

THE WITNESS: You are scaring me now.

CHAIRMAN GLEIMAN: No, no, no. Hearing none, I will direct that counsel provide two copies of the testimony of Witness Plunkett to the court reporter and the material

will be received into evidence but not transcribed into the record.

[Direct Testimony of Michael K. Plunkett, USPS-T-36, was received into evidence.]

CHAIRMAN GLEIMAN: Counsel, are there any Category 2 Library References to deal with today?

MR. REITER: Library Reference 62, which are materials related to the testimony of Witness Plunkett.

CHAIRMAN GLEIMAN: That is it?

MR. REITER: That is it.

CHAIRMAN GLEIMAN: Okay. That being the case, I will direct that the Library Reference in question be admitted into evidence and not transcribed into the record.

[Library Reference 62 was received into evidence.]

CHAIRMAN GLEIMAN: Mr. Plunkett, have you had an opportunity to examine the packet of designated written cross-examination that was made available earlier today?

THE WITNESS: Yes, I have.

CHAIRMAN GLEIMAN: If those questions were asked of you today, would your answers be the same as those you previously provided in writing?

THE WITNESS: Yes, they would.

CHAIRMAN GLEIMAN: That being the case, I am going

to ask counsel to provide two copies of the designated written cross-examination to the reporter. The material will be received into evidence and transcribed into the record.

[Designation of Written Cross-Examination of Michael K. Plunkett, USPS-T-36, was received into evidence and transcribed into the record.]

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, DC 20268-0001

Postal Rate and Fee Changes, 2000 Docket No. R2000-1

DESIGNATION OF WRITTEN CROSS-EXAMINATION
OF UNITED STATES POSTAL SERVICE
WITNESS MICHAEL K. PLUNKETT
(USPS-T-36)

Party	Interrogatories
Amazon.com, Inc.	AMZ/USPS-T36-1-11, 13-14
Association of Priority Mail Users, Inc.	APMU/USPS-T36-1
Florida Gift Fruit Shippers Association	FGFSA/USPS-T36-1, 5
Office of the Consumer Advocate	AMZ/USPS-T36-14 OCA/USPS-T36-1-11
Parcel Shippers Association	OCA/USPS-T36-1-3, 7-8 PSA/USPS-T36-2 UPS/USPS-T36-3-7, 13-14
United Parcel Service	AMZ/USPS-T36-1-6, 14 OCA/USPS-T36-1-11 UPS/USPS-T36-1, 3-7, 12-14 POIR No. 3, Questions 7-9

Respectfully submitted,

Margaret P. Crenshaw

Margaret P. Crenshaw
Secretary

INTERROGATORY RESPONSES OF
UNITED STATES POSTAL SERVICE
WITNESS MICHAEL K. PLUNKETT (T-36)
DESIGNATED AS WRITTEN CROSS-EXAMINATION

Interrogatory:	Designating Parties:
AMZ/USPS-T36-1	Amazon, UPS
AMZ/USPS-T36-2	Amazon, UPS
AMZ/USPS-T36-3	Amazon, UPS
AMZ/USPS-T36-4	Amazon, UPS
AMZ/USPS-T36-5	Amazon, UPS
AMZ/USPS-T36-6	Amazon, UPS
AMZ/USPS-T36-7	Amazon
AMZ/USPS-T36-8	Amazon
AMZ/USPS-T36-9	Amazon
AMZ/USPS-T36-10	Amazon
AMZ/USPS-T36-11	Amazon
AMZ/USPS-T36-13	Amazon
AMZ/USPS-T36-14	Amazon, OCA, UPS
APMU/USPS-T36-1	APMU
FGFSA/USPS-T36-1	FGFSA
FGFSA/USPS-T36-5	FGFSA
OCA/USPS-T36-1	OCA, PSA, UPS
OCA/USPS-T36-2	OCA, PSA, UPS
OCA/USPS-T36-3	OCA, PSA, UPS
OCA/USPS-T36-4	OCA, UPS
OCA/USPS-T36-5	OCA, UPS
OCA/USPS-T36-6	OCA, UPS
OCA/USPS-T36-7	OCA, PSA, UPS
OCA/USPS-T36-8	OCA, PSA, UPS
OCA/USPS-T36-9	OCA, UPS
OCA/USPS-T36-10	OCA, UPS
OCA/USPS-T36-11	OCA, UPS
PSA/USPS-T36-2	PSA
UPS/USPS-T36-1	UPS
UPS/USPS-T36-3	PSA, UPS
UPS/USPS-T36-4	PSA, UPS
UPS/USPS-T36-5	PSA, UPS
UPS/USPS-T36-6	PSA, UPS

UPS/USPS-T36-7	PSA, UPS
UPS/USPS-T36-12	UPS
UPS/USPS-T36-13	PSA, UPS
UPS/USPS-T36-14	PSA, UPS
POIR No. 3, Questions 7-9	UPS

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-1.
Please refer to Attachment I to your testimony, pages 1-6. The note that is below the rate table on each page refers to workpapers from USPS-T-37 (Kiefer). Please confirm that you are relying on witness Keifer's workpapers. If you do not confirm, please supply the correct reference.

AMZ/USPS-T36-1 Response.

Not confirmed. See attachment.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF AMAZON.COM, INC

Attachment to response to AMZ/USPS-T36-1.

Corrected notes to USPS-T-36 Attachment I:

Page 1:

Rate for each cell calculated by subtracting line 11, Attachment H from inter BMC per piece rate element (LR-62, Att H, cell 034) to estimate per piece portion of rates. A markup factor of 1.21 was applied to the sum of the appropriate transportation cost from Attachment G and the product of the 2-cent per-pound nontransportation weight-related handling charge multiplied by the appropriate postage weight, and the contingency was added. The result was added to the per-piece portion, and the rate was rounded to the nearest whole cent.

Page 2

Rate for each cell calculated by applying the markup factor of 1.21 to the sum of the appropriate transportation cost from Attachment G and the product of the 2-cent per-pound nontransportation weight-related handling charge multiplied by the appropriate postage weight, and the contingency. was added. The result was added to the per-piece portion from LR62-Att H, cell O34 and the rate was rounded to the nearest whole cent.

Page 3

Rate for each cell calculated by applying the markup factor of 1.21 to the sum of the appropriate transportation cost from Attachment G and the product of the 2-cent per-pound nontransportation weight-related handling charge multiplied by the appropriate postage weight, and the contingency was added. For each individual rate category, the relevant discount factor from attachment H was subracted. The result was added to the per-piece portion from LR62-Att H, cell O34 and the rate was rounded to the nearest whole cent.

Page 4

Preliminary rates from Attachment I, page 1, constrained such that no rate went up more than 10 percent relative to existing rates , and no rate exceeds the Priority Mail rate for the same weight less 5 cents. In addition, rates were constrained not to decline by more than 2 percent relative to existing rates, subject to rounding.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO
INTERROGATORIES OF AMAZON.COM, INC

Page 5

Preliminary rates from Attachment I, page 1, constrained such that no rate went up more than 10 percent relative to existing rates , and no rate exceeded the comparable Priority Mail rate less 5 cents. Rates are rounded to the nearest whole cent.

Page 6

Preliminary rates from Attachment I, page 3, constrained such that no rate went up more than 10 percent relative to existing rates, and no rate exceeded the comparable Priority Mail rate shown at, less 5 cents. Rates were also constrained such that no rate could decline by more than 2 percent relative to existing rates. All rates rounded to nearest whole cent.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-2.
Please refer to Attachment I, page 6.
a. Please confirm that the proposed DSCF rate for a 30-pound package is $3.67.
b. Please confirm that the Request of the United States Postal Service for a Recommended Decision on Changes in Rates of Postage and Fees for Postal Services (January 12, 2000), Attachment B, page 41, shows a proposed DSCF rate of $3.94 for a 30-pound parcel.
c. Please resolve the above-cited differences.

AMZ/USPS-T36-2 Response

a. Confirmed.

b. Confirmed.

c. The discrepancy apparently arose as rate tables were scanned into electronic form for document production as characters were inadvertently changed from 67 to 94.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-3.
Please refer to Attachment I, page 6.

a. Please confirm that you propose DSCF rates for 36- and 37-pound parcels of $3.94 and $3.91, respectively.
b. Please confirm that these same rates are shown in the Request of the United States Postal Service for a Recommended Decision on Changes in Rates of Postage and Fees for Postal Services (January 12, 2000).
c. Please explain why charging a higher rate for a 36-pound parcel than for a 37-pound parcel is not anomalous.

AMZ/USPS-T36-3 Response.

a. Confirmed.

b. Confirmed.

c. The higher rate for the 36 pound rate is an anomaly, which apparently arises as rates in higher weights for DSCF parcels become driven more by per pound costs than by per piece costs. This anomaly could have been smoothed by manual adjustment of the rates. See also my response to UPS/USPS-T36-9.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-4.
Please refer to Attachment H to your testimony. For each dollar amount shown in lines 6-35, please indicate whether it is a per piece or per pound amount.

AMZ/USPS-T36-4 Response.

These are per piece amounts.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-5.
Please refer to Attachment H to your testimony.
a. Lines 25 and 34 reference USPS-T-27. Please provide precise citations (i.e., page and line number or table) where each referenced datum can be located.
b. At line 34, please explain the entry "5.798" under the passthrough column.
c. Is this a percentage? If not, what is it?
d. Line 28 references USPS-T-28. Please provide precise citations (i.e., page and line number or table) where each referenced datum can be located.Lines 6, 8, 10, 12, 14, 18, 20, 22, 24, 29, 31, and 33 reference USPS-T-26. Please provide precise citations (i.e., page and line number or table) where each datum can be located.

AMZ/USPS-T36-5 Response.

a & d. Citations are as follows

Att H Line Number	Reference
6	USPS-T-26, Attachment C, Page 1, line 2
8	USPS-T-26, Attachment A, Table 3, Row 5
10	USPS-T-26, Attachment A, Table 3, Row 6
12	USPS-T-26, Attachment B, Page 1, Row 1
14	USPS-T-26, Attachment C, Page 1, line 1
18	USPS-T-26, Attachment C, Page 1, line 9
20	USPS-T-26, Attachment C, Page 1, line 5
22	USPS-T-26, Attachment C, Page 1, line 11
24	USPS-T-26, Attachment A, Table 3, Row 9
25	USPS-T-26, Attachment A, Table 3, Row 11
29	USPS-T-26, Attachment A, Table 3, Row 7
31	USPS-T-26, Attachment A, Table 3, Row 8

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO
INTERROGATORIES OF AMAZON.COM, INC

33	USPS-T-26, Attachment I, Page 1, line 9
34	Line 35 less USPS-T-26, Attachment J, Page 1, Row 5

b & c. See my response to PSA/USPS-T36-1. This number is not used in rate design

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO
INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-6.
Please refer to Attachment G, page 5.
a. Please provide a specific citation (i.e., page and line number or table) to USPS-T-26 for the cost/cubic foot.
b. The note states that "cube per piece by weight for intra-BMC" is from USPS-T-16 (Degen), Exhibit B. Please provide a copy of witness Degen's Exhibit B, or correct the citation.
c. Please confirm the citation to USPS-T-37 (Kiefer), WP I.E.

AMZ/USPS-T36-6

a. Destination BMC transportation costs per foot are from USPS-T-26,

Attachment N, column 11..

b-c. These notes should read as follows:

DBMC cube per piece from Attachment F
Cost/cubic foot from USPS-T-26, Attachment N, page 5, row 12

Discount per piece calculated by subtracting the DDU transportation cost per piece from transportation cost per piece for Local intra-BMC Attachment G, pages 1 & 2, and rounding to nearest whole cent.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO
INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-7.
Please confirm that current and proposed Parcel Post DDU Destination Entry rates are identical. If you do not confirm, please identify where they differ.

AMZ/USPS-T36-7 Response.

Confirmed.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-8.

a. Please confirm that your Parcel Post DDU Destination Entry preliminary rates (Attachment I, p. 3) are $0.12 to $0.36 less than your proposed rates. If you do not confirm, please identify where this is not correct and supply the correct amount(s).
b. Please confirm that your Parcel Post DDU preliminary rates are 10 to I7percent lower than your proposed rates. If you do not confirm, please identify where this is not correct and supply the correct percent(s).
c. Please refer to pages 13-14 of your testimony, where you state that for the newest rate categories, rate changes were restricted so that no rate could change by more than 2 percent in either direction. Please identify the circumstances under which you would have reduced your final proposed rates to reflect your lower Parcel Post DDU Destination Entry preliminary rates.
d. In your opinion, are the underlying data and cost modeling for Parcel Post rate design in this docket superior, inferior, or essentially identical to the underlying data and cost modeling used in Docket No. R97-I? Please explain your answer.
e. Why did you formulate preliminary rates for Parcel Post DDU Destination Entry? What function did they serve?

AMZ/USPS-T36-8 Response.

a. Confirmed.

b. Confirmed.

c. As indicated in my testimony my reason for tightly controlling rates in the DDU and DSCF categories was the dearth of empirical data on which to base a significant change in rates. While this refers to cost data, it is also meant to refer to volume information from which to derive reliable elasticity estimates.

d. My understanding is that the basic approach to costing has changed little since the previous docket. As is indicated in my response to part c, the dearth of empirical data supporting DDU and DSCF rates is a source of concern, however, the same lack of data existed in Docket No. R97-1.

e. The preliminary rates perform two main functions; to establish the cost basis for rates within a given category, and to provide a preliminary estimate of the magnitude of price changes to which underlying cost data give rise prior to application of other statutory ratemaking criteria.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-9.

a. Please confirm that your proposed rates for DSCF Destination Delivery Parcel Post for mailpieces over 36 pounds correspond to your preliminary rates set forth at Attachment I, page 3. If you do not confirm, please identify where they differ.
b. Please explain why your proposed rates reflect current rates for DSCFDestination Delivery Parcel Post for mailpieces weighing from 2 to 36 pounds, and preliminary rates for higher weight rates.

AMZ/USPS-T36-9 Response.

a. Confirmed.

b. During the final stages of rate design, in order to conform to the revenue/rate level requirement for Parcel Post, I imposed tighter constraints on lower weight increments.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-10.
Please refer to Attachment G, pages 4 and 5. Why are DDU transportation discounts per piece calculated from transportation costs per piece from local intra-BMC, while DSCF transportation costs are calculated from DBMC transportation costs per piece in zones I&2?

AMZ/USPS-T36-10 Response.

In both cases, benchmarks were chosen based on the approximate distances traveled, similarity of origination and destination facility, and the types of equipment considered likely to be used on such trips.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-11.

a. Please confirm that the references to USPS-T-37 in the notes to the tables in your Attachments refer to Docket No. R97-1, USPS-T-37. If you do not confirm, please provide a specific citation to witness Kiefer's testimony in this docket.
b. b. Please confirm that the preliminary rates for DDU Parcel Post cannot be calculated following the procedure outlined at the bottom of Attachment I, page 3, and provide a detailed explanation of how preliminary rates for DDU Parcel Post may be calculated.

AMZ/USPS-T36-11 Response.

a. Not confirmed. Prior to the final assignment of witness numbers in this docket, USPS-T-37 was used as a "working designation" during preparation of workpapers. These references are internal to the parcel post workpapers. See my response to AMZ/USPS-T36-6.

b. Preliminary DDU Parcel Post rates are calculated by subtracting the appropriate discounts (Attachment H, lines 7, 11, and 23) from the benchmark per piece charge (see my response to AMZN/USPS-T36-13). Transportation charges, which are shown in Attachment G, page 5 are added based on weight increment, and the two cent per pound weight related non-transportation cost is added, along with a contingency. In order to produce rates that are consistent with proposed rate levels, a markup of 1.21 is applied to the result.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-13.
Has a Parcel Post per piece rate element been calculated in this docket, corresponding to USPS-T-37, WI' 1.1, page 2, in Docket No. R97-I? If so, please provide a reference to where this datum can be found.

AMZ/USPS-T36-13 Response.

See LR-62, Attachment H, file PPAttD-J.xls, cell O34.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO
INTERROGATORIES OF AMAZON.COM, INC

AMZ/USPS-T36-14.
For TY 2001, what is the coverage on parcels entered at the DDU and DSCF rates?

AMZ/USPS-T36-14 Response,

As cost coverage is typically calculated at the subclass level, I did not incorporate analysis of implied coverages within rate categories into parcel post rate design. My estimate of the implied cost coverage of DDU parcel post TYAR is approximately 113 percent.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF THE ASSOCIATION OF PRIORITY MAIL USERS

APMU/USPS-T36-1.
Please refer to page 5 (11. 13-15) of your testimony, where you state that implementation of the Eagle Network "enabled the Postal Service to provide much more reliable service for Express and Priority Mail between major markets..

a. Please identify the comparison you had in mind when you stated that Priority Mail traveling on the Eagle Network received more reliable service. In other words, more reliable than what?

b. Please supply performance data comparing Priority Mail that travels on the Eagle Network with Priority Mail that travels on commercial air.

APMU/USPS-T36-1 Response

a. The citation in the interrogatory is from the section dealing with historical rate developments where I invoke a standard explanation (used most recently in Docket No. R97-1 (USPS-T-33, p. 10)) for observed volume trends. The comparison is between service performance prior to implementation of the Eagle network and after.

b. The reference is to a specific period of time (1986-1990) that is long past. I am not aware of any studies available from that period of time. Over the last ten years, network and volume changes are likely to have rendered any such study – were it available – obsolete.

RESPONSE OF WITNESS PLUNKETT TO INTERROGATORIES OF THE FLORIDA GIFT FRUIT SHIPPERS ASSOCIATION

FGFSA/USPS-T-36-1. On page 13, you state than the rate for each piece of parcel post includes two cents per pound for weight-related nontransportation handling cost.

a. Identify the costs which are included as "weight-related nontransportation handling cost".
b. Identify any study which specifies and quantifies "weight-related nontransportation costs".
c. Provide the amount of "weight-related nontransportation costs".
d. Provide a complete explanation of the method you used to determine that two cents per pound is the proper amount to cover such costs.
e. Identify the additional handling and costs to support and justify a rate element of 80 cents for a 40 pound parcel, but which amount to only 20 cents for a 10 pound parcel.
f. Do you agree that it would be more appropriate to describe these additional handling costs as being size or cube related, rather than weight related? If you do not agree, please fully explain.
g. If the two cents per pound covers the "weight related nontransportation handling costs" for an Inter-BMC parcel. For Intra-BMC and DBMC parcels there is less handling than for the Inter-BMC parcel. Explain why the same rate element applies to all three rate categories.

FGFSA/USPS-T-36-1 Response.

a. The two cent charge for weight related nontransportation handling costs has been used in parcel post rate design in past dockets from as far back as Docket No. R84-1. In designing rates for this docket I have complied with this convention which provides a means through which rates may reflect sortation and mailhandling and delivery costs that are presumed to be caused by weight.

b. My understanding is that the two cent charge originated in Docket No. R84-1 (PRC Op. at 540-541).

c. Though I am aware of no study that would aggregate such costs. If one assumes that each pound causes two cents, the test year weight related nontransportation costs would be $39.3M (see LR-62, Attachment H, cell O9).See response to part a.

d-e. See response to part a.

RESPONSE OF WITNESS PLUNKETT TO INTERROGATORIES OF THE FLORIDA GIFT FRUIT SHIPPERS ASSOCIATION

f. No. See response to part a, however, to the extent that cube and size are positively correlated with weight, these costs could be said to be positively correlated with those variables.

g. See my response to part a.

RESPONSE OF WITNESS PLUNKETT TO INTERROGATORIES OF THE FLORIDA GIFT FRUIT SHIPPERS ASSOCIATION

FGFSA/USPS-T-36-5. If a parcel is nonmachinable solely because of weight — in excess of 35 pounds — explain the justification for the additional surcharge in view of the rate element of two cents per pound for "weight related nontransportation handling costs".

FGFSA/USPS-T-36-5 Response.

Parcels can be nonmachinable for reasons other than weight For example shape and cube may determine machinabillity independent of weight.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF THE OFFICE OF THE CONSUMER ADVOCATE

OCA/USPS-T36-1. Please refer to your testimony at page 13. There you state, in regard to Parcel Post, that "Rates have been constrained such that no rate is allowed to increase by more than 10 percent."

a. Please explain on what the basis you chose ten percent.
b. If the ten percent constraint relies on a study or other empirical evidence, please provide such evidence.
c. Did you consider other constraints? If so, what were they and why were they rejected.

OCA/USPS-T-36-1 Response.

a. – b. The decision to use 10 percent as an upper limit was based on my application of the statutory ratemaking criteria in this case. In arriving at this limit I considered the revenue required from parcel post, the increases that were being considered for other classes, and previous Commission recommendations on parcel post.

c. The use of this particular ceiling does not represent a rejection of other specific constraints, but represents what I considered to be a reasonable boundary given the existing circumstances of this case. There were no other constraints considered explicitly.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF THE OFFICE OF THE CONSUMER ADVOCATE

OCA/USPS-T36-2. Please refer to your testimony at page 13-14. There you state, in regard to Parcel Post, that "Moreover, for the newest rate categories, rate changes were restricted so that no rate could change by more than 2 percent in either direction."

a. Please explain on what the basis you chose two percent.
b. If the two percent constraint relies on a study or other empirical evidence, please provide such evidence.
c. Did you consider other constraints? If so, what were they and why were they rejected.
d. Please specify exactly what you refer to as "newest rate categories." Do these include the DSCF and DDU rate categories added in Docket No. R97-1?

OCA/USPS-T-36-2 Response.

a. In the case of the rate categories established in Docket No. R97-1, I was reluctant to propose drastic changes in rates due to the lack of empirical data with which to judge the appropriateness of the existing rates (see also page 13 of my testimony). Moreover, the lack of empirical data makes it difficult to predict the effect of price changes, and because consolidators and their mailer clients have made investments and contracts based on the current rate relationships, significant changes in those relationships could hinder the orderly development of these new worksharing arrangements.

b. The process by which I arrived at this constraint is similar to that described in my response to OCA/USPS-T-36-1, however, in this particular case my main concern was rate stability given the relative newness of the rates in these categories.

c. No.

d. My testimony refers to the DSCF and DDU categories in this instance.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF THE OFFICE OF THE CONSUMER ADVOCATE

OCA/USPS-T36-3. Did you constrain any other rates or rate categories of Parcel Post that are not included in those discussed in OCA/USPS-T36-2 & 3 above? If so, please give a detailed explanation of such constraints.

OCA/USPS-T-36-3 Response.

No.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF THE OFFICE OF THE CONSUMER ADVOCATE

OCA/USPS-T36-4. Please refer to your testimony at page 9. There you state, in regard to Express Mail, that "The rate increases for each rate element were constrained to be no more than 4.5 percent consistent with rounding constraints, rates were rounded up to the nearest nickel and rates for Post Office to Addressee are set to be at least twice the Priority Mail rates for zone 5."

a. Please explain on what the basis you chose 4.5 percent.
b. If the 4.5 percent constraint relies on a study or other empirical evidence, please provide such evidence.
c. Did you consider other constraints? If so, what were they and why were they rejected?

OCA/USPS-T-36- 4 Response.

a. – b. The decision to use 4.5 percent as an upper limit was based on my application of the statutory ratemaking criteria in this case. In arriving at this limit I considered the revenue required from Express Mail, the increases that were being considered for other classes, and previous Commission recommendations on Express Mail. Rounding the rates to the nearest nickel and maintaining a suitable gap between Express Mail and Priority Mail are consistent with long standing ratemaking practice..

c. The use of this particular ceiling does not represent a rejection of other specific constraints, but represents what I considered to be a reasonable boundary given the existing circumstances of this case.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF THE OFFICE OF THE CONSUMER ADVOCATE

OCA/USPS-T36-5. Please refer to your testimony at page 9. There you state, in regard to Express Mail, that "The popular letter rate, which accounts for 78 percent of all Express Mail volume, is proposed to be increased from "11.75 to $12.30, an approximate 4.7 percent increase."

a. Please explain on what the basis you chose 4.7 percent.
b. Do you consider this to be a constraint on the increase for the letter rate? Please explain why or why not.

OCA/USPS-T-36- 5 Response.

a. – b. For this particular rate I used the same 4.5 percent constraint as with other Express Mail rates. A 4.5 percent increase over the existing rate produces a rate of $12.28 which, when rounded to the nearest nickel is $12.30.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF THE OFFICE OF THE CONSUMER ADVOCATE

OCA/USPS-T36-6. Please refer to your testimony at page 9. There you state, in regard to Express Mail, that "In a number of cells in each category, particularly for pieces weighing between 20 and 35 pounds, I manually adjusted rates to preserve reasonable relationships between adjacent weight cells."

a. Please provide several examples of these manual adjustments with an explanation of how it preserved reasonable rate relationships.
b. Please indicate what you mean by "a number." A count of cells is not necessary, a percent or a range is satisfactory in order to give the magnitude of "a number."

OCA/USPS-T-36-6 Response.

a. For example, the rate for a 25 pound PO to addressee piece was adjusted so that the rate would be $1.40 more than the rate for a 24 pound piece. These adjustments were introduced to preserve relatively uniform relationships between adjacent cells within a rate category. For the same weight increment I adjusted the PO to PO rate so that it would be $2.30 less than the PO to addressee rate, and adjusted the Custom Designed rate to be $0.20 less than the PO to PO rate. These adjustments were made to maintain a consistent relationship among rate categories for a particular rate increment.

b. Manual adjustments of the kind described in part a were made to approximately 7 percent of the rate cells.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF THE OFFICE OF THE CONSUMER ADVOCATE

OCA/USPS-T36-7. Please refer to your testimony at page 14. There you discuss the amount of the passthroughs you use for various surcharges and discounts applicable to Parcel Post.

a. Please explain how a decision to pass through lesser amounts of the cost differences (in rate categories in which the passthrough was 100 percent) would have affected the rates for Parcel Post. For example, what would be the effect of a 50 percent or a 75 percent passthrough?
b. If passthroughs were held to 50 or 75 percent, as above, would you have changed/reconsidered your general ten percent constraint on Parcel Post rates? Please explain in detail.

OCA/USPS-T-36-7 Response.

a. Because surcharges apply in relatively limited circumstances, changing passthroughs would have had a minimal effect on rates in general. In the case of discounts, however, one would expect the effect on rates would greater, and that with smaller discounts, the rate increase needed to produce a given revenue level would be smaller. In order to provide a more detailed response, it would be necessary to produce a volume forecast incorporating these assumptions. I would also point out that in producing final rates I constrained the rates for discounted categories. The practical effect of these constraints was higher rates than would have resulted otherwise; an effect similar to what would be produced by limiting passthroughs in this case.
b. The use of 100 percent passthroughs – except in the case of new non-machinable surcharges – was an assumption that I employed throughout the rate design process. I have not performed any analysis to estimate the effect of rates of passthrough adjustment. However, as mentioned in my response to part a, the constraints I employed in the rate design process produce a similar effect on rates - in direction if not in magnitude. As is also mentioned

in my response to part a, a definitive answer is difficult in the absence of a volume forecast that incorporates the assumptions that have been posed.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF THE OFFICE OF THE CONSUMER ADVOCATE

OCA/USPS-T36-8. Postal Rate Commission Chairman Edward J. Gleiman gave a speech before the Association of Priority Mail Users, Inc. on September 28, 1999. The full text of the speech may be found on the PRC website, www.prc.gov. In this speech he said the following.

> Because 95 percent of the Priority volume is less than five pounds, Priority parcels can be delivered by letter carriers on both residential and business routes. Consequently, Priority Mail enjoys even greater scope economies than parcel post.
>
> * * * *
>
> The Postal Service's lower weight single piece parcel business seems to cry out for some reform. Eliminating lightweight parcel post in favor of Priority Mail or some other, more general realignment in the parcel area might be a solution worth considering. I would urge the Postal Service to consider the matter.

a. Has the Postal Service considered eliminating single piece Parcel Post under 2 pounds in favor of Priority Mail?
b. If so, please provide all memoranda, studies or other documents that pertain to this matter. If not, please explain why not.
c. Has the Postal Service considered eliminating single piece Parcel Post for any weights under 5 pounds in favor of Priority Mail?
d. If so, please provide all memoranda, studies or other documents that pertain to this matter. If not, please explain why not.

OCA/USPS-T36-8 Response

a. I am not aware of this proposal having been considered.

b. The Postal Service considers Parcel Post and Priority Mail to be separate products serving distinct customer needs. The extent to which the pricing structure of either or both products should be altered depends on considerations beyond economies of scope. Moreover, the relatively small gap between inter-BMC Parcel Post rates and Priority Mail rates which prompted the Chairman's remarks would be widened considerably given the rates proposed in this docket.

c. I am not aware of this proposal having been considered.

d. See my response to part b.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF THE OFFICE OF THE CONSUMER ADVOCATE

OCA/USPS-T36-9. Please assume hypothetically that the Commission recommends merging the lower weights of single piece Parcel Post into Priority Mail.
(1) Consider first merging under two pounds;
(2) Also, separately consider merging under five pounds.
In answering parts a. and b. describe the general effects; then give specific calculations where possible and state all assumptions made to generate the calculations.

a. What would be the cost and revenue effects on single piece Parcel Post? On Priority Mail?
b. What would be the volume effects on each?

OCA/USPS-T36-9 Response.

I have not studied these issues. Based on the hypothetical presented in this interrogatory, I am able to infer that an informed opinion on pricing, volume, and costing impacts would require extensive econometric and costing studies which have not been performed.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF THE OFFICE OF THE CONSUMER ADVOCATE

OCA/USPS-T36-10. Please assume hypothetically that the Commission recommends merging the lower weights of single piece Parcel Post into Priority Mail.

a. Would this merger significantly improve parcel rate structures with regard to criterion 7 of the Act? (Simplicity of structure for the entire schedule and simple,.) Please explain in detail.

b. Would this merger improve the parcel rate structures with regard to criterion 2 of the Act? (The value of mail service provided to the sender and the recipient.) Please explain in detail.

OCA/USPS-T36-10 Response.

a. In general, reducing the number of prices, which this interrogatory puts forth, would be expected to simplify the rate structure. However, I cannot affirm that this would result in "identifiable relationships between the rates or fees charged the various classes of mail for postal services" in the absence of cost studies and forecasts that would allow informed speculation on what kind of prices are likely to result. See also my response to OCA/USPS-T36-9.

b. The information needed to answer this question is not available. Please see my response to part (a) above.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF THE OFFICE OF THE CONSUMER ADVOCATE

OCA/USPS-T36-11. Please assume hypothetically that the Commission recommends merging the lower weights of single piece Parcel Post into Priority Mail.

a. Please explain in detail what the effect of the merger would have on the Priority Mail contract with Emery.
b. Please explain in detail what the effect of the merger would have on other transportation costs.
c. Please explain in detail what the effect of the merger would have on mail processing costs.

OCA/USPS-T36-11 Response.

a.-c. Because this proposal has not been considered, its effects on the Priority Mail contract with Emery, on other transportation costs, and on mail processing costs have not been studied and are therefore unknown.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO FOLLOW-UP INTERROGATORY OF PARCEL SHIPPERS ASSOCIATION

PSA/USPS-T36-2. Please refer to Witness Eggleston's answer to PSA/USPS-T264a. In particular, please refer to Table 2 at page 1 of Attachment A of the Errata filed to USPS-T-26 as a result of Witness Eggleston's answer to this interrogatory. Please note that the average cost for oversized parcels dropped 20-25 percent as a result of this Errata. Please provide revised rates for oversized parcels that reflect this correction to their average cost.

PSA/USPS-T36-2 Response.

Attached is a table showing the rates that result from plugging witness Eggleston's errata into my rate design worksheets. However, I would point out that the forecasts and revenue assumptions that have been incorporated into my rate design do not reflect these changes. Because oversize pieces account for a small share of total volume, the effect on total revenue and or other rates would be likely to be minimal. I would add that this is an interim stage in rate development, the rate effects of these changes on volume forecasts and the roll forward would have to be examined in order to make an informed judgement on whether the resulting rates are correct.

Attachment to Response to PSA/USPS-T36-2

Effect of Cost Errata on Oversized Parcel Post Rates

Intra BMC	Proposed Rates	Proposed Rates w. Errata	Change
Local	$ 19.82	$ 19.82	$ -
Zones 1 & 2	$ 28.99	$ 28.99	$ -
Zone 3	$ 28.99	$ 28.99	$ -
Zone 4	$ 28.99	$ 28.99	$ -
Zone 5	$ 28.99	$ 28.99	$ -

Inter BMC	Proposed Rates	Proposed Rates w. Errata	Change
Zones 1 & 2	$ 34.75	$ 34.75	$ -
Zone 3	$ 38.94	$ 38.94	$ -
Zone 4	$ 45.10	$ 45.10	$ -
Zone 5	$ 54.87	$ 54.87	$ -
Zone 6	$ 66.41	$ 66.41	$ -
Zone 7	$ 82.14	$ 82.14	$ -
Zone 8	$ 108.13	$ 108.13	$ -

Parcel Select	Proposed Rates	Proposed Rates w. Errata	Change
DDU	$ 8.69	$ 8.69	$ -
DSCF	$ 12.14	$ 11.99	$ (0.15)
DBMC			
Zones 1 & 2	$ 16.66	$ 16.61	$ (0.05)
Zone 3	$ 24.55	$ 24.40	$ (0.15)

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORY OF UNITED PARCEL SERVICE

PS/USPS-T36-1. Identify all instances in which you have relied on or used in your testimony in any way any FY 1999 cost, revenue, volume, or other data, and state in each such instance why you used FY 1999 data instead of data for BY 1998.

RESPONSE:

I did not I used FY 1999 data directly in my testimony. My workpapers identify where I relied on data supplied by other Postal Service witnesses. I do not know the extent to which these witnesses relied on FY 1999 data.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T36-3. Refer to Attachment H of USPS-T-36.

(a) Confirm that a 100% passthrough is used for Parcel Post DBMC Non-transportation Cost Savings to yield a DBMC Non-transportation Discount of $0.70 per piece. If not confirmed, explain.

(b) Confirm that Witness Eggleston (USPS-T-26, Attachment C, Revised 2/18/2000) has revised the Parcel Post DBMC Non-transportation Cost Savings to be $0.662 per piece. If not confirmed, explain.

(c) Confirm that the effective passthrough for Parcel Post DBMC Non-transportation costs is actually 106%. If confirmed, explain why a passthrough in excess of 100% is justified. If not confirmed, explain in detail.

(d) Confirm that a 100% passthrough is used for OBMC Cost Savings to yield a Parcel Post OBMC rate differential of $0.93 per piece. If not confirmed, explain.

(e) Confirm that Witness Eggleston (USPS-T-26, Attachment C, Revised 2/l 8/2000) has revised the Parcel Post OBMC Cost Savings to be $0.894 per piece. If not confirmed, explain.

(f) Confirm that the effective passthrough for Parcel Post OBMC Cost Savings is actually 104%. If confirmed, explain why a passthrough in excess of 100% is justified. If not confirmed, explain in detail.

(g) Confirm that Parcel Post DSCF and DDU rates are derived based on Parcel Post DBMC rates. If not confirmed, explain in detail.

(h) Confirm that a passthrough in excess of 100% for Parcel Post DBMC Non-transportation Cost Savings leads to an effective passthrough of greater than 100% of the worksharing activities required in the Parcel Post DSCF and DDU rate categories. If not confirmed, explain in detail.

(i) Explain all considerations made in proposing a 100% passthrough for worksharing activities in the Parcel Select rate categories (i.e., DBMC, DSCF and DDU). In particular, describe all considerations of the value of service in each Parcel Select rate category in setting the passthrough.

UPS/USPS-T36-3 Response.

a.-h. Confirmed

i. The use of a 100 percent passthrough reflects my view that these rates ought to reflect, as nearly as is consistent with the statutory ratemaking criteria, the value of the work contributed by mailers and or consolidators performing worksharing activities. In considering the value of service of these particular rate categories, I did not consider the value of service of the worksharing passthroughs apart from the other elements used in rate design. The constraints that I imposed as the final stage

in rate design were intended to capture value of service considerations, and were applied to the rates themselves, rather than to the passthroughs used to develop the rates.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T36-4 Refer to Attachment K of USPS-T-36 with respect to the incremental costs cited for Parcel Post before and after rates. Explain in detail why the after rates incremental costs of $1,106,639,522 differ from those cited by Witness Mayes in her Exhibit USPS-32E ($1,061,265,000).

UPS/USPS-T36-4 Response.

According to errata filed by witness Kay (USPS-T-23, revised 3-13-00) this number should be $1,079,739.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T36-5. Refer to Attachment E, which shows as a source USPS-T-36, WP 1.A. (filed as USPS-LR-I-62).

(a) Confirm that actual RPW data from Postal Quarter 3 of 1999 were used to derive the share of Parcel Post volume for each rate category in the Test Year. If not confirmed, explain in detail. If confirmed:
    (i) Explain why Postal Quarter 3, 1999, data were used.
    (ii) Explain why data from other Postal Quarters in 1999 were not used
    (iii) Explain why Postal Quarter 3, 1999, data are expected to be applicable in the Test Year given the large volume increase from the Base Year to the Test Year with respect to Parcel Select volume.

(b) Explain whether actual costs from Postal Quarter 3, 1999, were applied in the Parcel Post rate design.

(c) Explain in detail how FY98 costs for Parcel Post were adjusted from FY98 to FY99 to take into account the change in relative volume created by the new dropship work categories.

(d) Explain any further adjustments in Parcel Post costs from 1999 to the Test Year to take into account changes in relative volumes created by the new dropship work categories.

UPS/USPS-T36-5 Response.

a. Volumes from PQ 3 were selected for use because they were the first quarterly volumes available after the implementation of new rates. Though typically a full year of data would be preferable, volume data from Postal Quarters 1 and 2 would have reflected the period prior to implementation of rates from Docket No. R97-1 prior to the existence of DSCF and DDU rates.

b. Parcel Post rate design was based on Test Year 2001 costs, which were in turn based on FY 98 costs.

c.-d. An explanation of the steps taken to account for changes in volume from the base year to the test year is contained in attachment X of witness Eggleston's testimony (USPS-T-26).

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF UNITED PARCEL SERVICE

USPS-T36-6. Refer to page 14 and Attachment H of USPS-T-36.
(a) Confirm that the DDU Savings Off of DBMC represents an average of machinable and non-machinable savings. If not confirmed, explain.
(b) Confirm that 100% of the DDU Savings Off of DBMC is proposed to be passed through. If not confirmed, explain.
(c) Confirm that under the proposed rates, non-machinable DDU Parcel Post pieces will have an effective passthrough of greater than 100%.

UPS/USPS-T-36-6 Response.

a. Confirmed

b. Confirmed.

c. Not confirmed. Though such an inference could be drawn from a confirmation of the first two parts of this interrogatory, passthroughs were applied in the development of preliminary rates. In developing the proposed rates I applied constraints that raised the proposed DDU rates relative to preliminary rates. Though applied differently, the effect of the constraints could be considered equivalent to a reduction in the passthrough. For example, the 2-pound DDU rate changed from $1.09 to $1.23 after I imposed constraints on the rates (see attachment I of my testimony). An identical result could have been achieved by reducing the passthrough of the DDU savings off of DBMC to 80 percent.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T36-7. Refer to Attachment D and Attachment K of USPS-T-36.

(a) Confirm that the revenue per piece for Parcel Post Intra-BMC Non-Alaska bypass is $3.414 ($93,880,416 I27,495,992) in the TYBR and $3.736 ($93,593,938 / 25,050,582) in the TYAR for an increase of 9.4%. If not confirmed, explain in detail.

(b) Confirm that the revenue per piece for Parcel Post Inter-BMC is $5.469 ($276,826,827 /50,614,551) in the TYBR and $6.017 ($281,052,935 /46,710,097) in the TYAR for an increase of 10.0%. If not confirmed, explain in detail.

(c) Confirm that the revenue per piece for Parcel Post DBMC is $2.847 ($762,370,675/ 267,762,878) in the TYBR and $2.862 ($771,859,947 /269,734,882) in the TYAR for an increase of 0.5%. If not confirmed, explain in detail.

(d) Confirm that the revenue per piece for Parcel Post DSCF is $1.990 ($4,451,357/ 2,237,344) in the TYBR and $2.004 ($4,516,931 /2,253,822) in the TYAR for an increase of 0.7%. If not confirmed, explain in detail.

(e) Confirm that the revenue per piece for Parcel Post DDU is $1.319 ($36,954,506/ 28,008,725) in the TYBR and $1.319 ($37,226,667 /28,215,002) in the TYAR for an increase of 0.0%. If not confirmed, explain in detail.

UPS/USPS-T36-7 Response.

a.-e. Confirmed

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T36-12. Refer to the sheet entitled "PQ3-data" in spreadsheet "PPattd-j.xls" provided in USPS-LR-I-62. At lines 41-61 of this sheet is a section of data with a notation "Data from QT993XX.xlw" which gives Revenue, Pieces, and Weight for each of the following:

STD B INTER-BMC MACH PARCEL POST
AGEN STD B INTER-BMC MACH PARCEL POST
CONGR FRANK STD B INTER-BMC MACH PARCEL POST STD B INTRA-BMC PARCEL POST
STD B PARCEL POST COMBINATION ENCLOSURE REVENUE STD B BCODE INTER-BMC MACH PARCEL POST
STD B BCODE INTRA-BMC PARCEL POST
STD B ORIGIN BMC PRES INTER-BMC MACH PARCEL POST
STD B ORIGIN BMC PRES BCODE INTER-BMC MACH PARCEL POST STD B ORIGIN BMC PRES INTER-BMC NONMACH PARCEL POST STD B BMC PRES INTER-BMC MACH PARCEL POST
STD B BMC PRES BCODE INTER-BMC MACH PARCEL POST STD B INTER-BMC NONMACH PARCEL POST
STD B DESTINATION BMC PARCEL POST
AGEN STD B DESTINATION BMC PARCEL POST
CONGR FRANK STD B DESTINATION BMC PARCEL POST STD B BCODE DESTINATION BMC PARCEL POST
STD B DESTINATION SCF PARCEL POST
STD B DESTINATION DELIV UNIT PARCEL POST
STD B BMC PRES INTER-BMC NONMACH PARCEL POST STANDARD (B) INTRA-BMC ALASKA BYPASS PARCEL POST

(a) Confirm that this data is from Postal Quarter 3 of 1999. If not confirmed, explain.
(b) Provide this same set of data for Postal Quarter 1 of 1999.
(c) Provide this same set of data for Postal Quarter 2 of 1999.
(d) Provide this same set of data for Postal Quarter 4 of 1999.

UPS/USPS-T36-12 Response.

a. Confirmed.

b-d. See attachment. Note that the equivalent section from Postal Quarter 1 does not reflect new mail categories created for reporting of Standard B after R97-1.

Attachment to witness Plunkett response to UPS/USPS-T-36-12

USPS RPW Extract Volumes

FY 1999 PQ I

REVENUE	PIECES	WEIGHT	
75,042,903	15,572,510	88,265,944	STD B ZONE RATE INTER-BMC MACH/NONMACH PARCEL POST
1,556,638	305,706	2,550,928	AGEN STD B ZONE RATE INTER-BMC MACH/NONMACH PARCEL POST
0	0	0	CONGR FRANK STD B ZONE RATE INTER-BMC MACH/NONMACH PARCEL POST
27,661,324	10,161,128	50,498,063	STD B ZONE RATE INTRA-BMC MACH/NONMACH PARCEL POST
16,282	0	0	STD B ZONE RATE PARCEL POST COMB ENCL
44,394	2,664	116,703	STD B ZONE RATE INTER-BMC NONMACH PARCEL POST
0	0	0	STD B ZONE RATE INTRA-BMC NONMACH PARCEL POST
171,747,871	68,381,385	387,532,103	STD B ZONE RATE DESTINATION BMC PARCEL POST
22,570	2,833	2,339	AGEN STD B ZONE RATE DESTINATION BMC PARCEL POST
0	0	0	CONGR FRANK STD B ZONE RATE DESTINATION BMC PARCEL POST
2,689,390	460,048	22,492,035	STANDARD (B) INTRA-BMC ALASKA BYPASS PARCEL POST

Attachment to witness Plunkett response to UPS/USPS-T-36-12

USPS RPW Extract Volumes

FY 1999 PQ II

REVENUE	PIECES	WEIGHT	
66,880,415	13,222,063	75,148,860	STD B INTER-BMC MACH PARCEL POST
1,645,196	264,172	3,230,415	AGEN STD B INTER-BMC MACH PARCEL POST
0	0	0	CONGR FRANK STD B INTER-BMC MACH PARCEL POST
27,737,409	9,478,421	48,932,898	STD B INTRA-BMC PARCEL POST
16,819	0	0	STD B PARCEL POST COMBINATION ENCLOSURE REVENUE
585,998	149,101	686,259	STD B BCODE INTER-BMC MACH PARCEL POST
1,463,367	473,377	2,403,433	STD B BCODE INTRA-BMC PARCEL POST
2,610,731	797,538	5,703,655	STD B ORIGIN BMC PRES INTER-BMC MACH PARCEL POST
726,625	267,399	752,724	STD B ORIGIN BMC PRES BCODE INTER-BMC MACH PARCEL POST
887,189	198,886	2,597,986	STD B ORIGIN BMC PRES INTER-BMC NONMACH PARCEL POST
5,439,604	1,412,814	8,584,691	STD B BMC PRES INTER-BMC MACH PARCEL POST
2,321,752	576,673	2,566,061	STD B BMC PRES BCODE INTER-BMC MACH PARCEL POST
5,294,626	458,937	9,434,055	STD B INTER-BMC NONMACH PARCEL POST
101,877,986	38,030,581	246,844,639	STD B DESTINATION BMC PARCEL POST
419,948	110,096	1,541,344	AGEN STD B DESTINATION BMC PARCEL POST
0	0	0	CONGR FRANK STD B DESTINATION BMC PARCEL POST
41,665,260	14,351,637	81,460,096	STD B BCODE DESTINATION BMC PARCEL POST
187,297	86,773	373,353	STD B DESTINATION SCF PARCEL POST
598,109	344,915	2,108,456	STD B DESTINATION DELIV UNIT PARCEL POST
4,331,172	1,474,118	7,440,854	STD B BMC PRES INTER-BMC NONMACH PARCEL POST
2,862,204	430,929	20,873,342	STANDARD (B) INTRA-BMC ALASKA BYPASS PARCEL POST

Attachment to witness Plunkett response to UPS/USPS-T-36-12

USPS RPW Extract Volumes

FY 1999 PQ IV

REVENUE	PIECES	WEIGHT	
49,114,407	8,286,262	50,276,849	STD B INTER-BMC MACH PARCEL POST
2,629,723	362,522	3,235,273	AGEN STD B INTER-BMC MACH PARCEL POST
0	0	0	CONGR FRANK STD B INTER-BMC MACH PARCEL POST
24,073,688	6,982,081	36,071,536	STD B INTRA-BMC PARCEL POST
18,033	0	0	STD B PARCEL POST COMBINATION ENCLOSURE REVENUE
787,450	155,229	973,831	STD B BCODE INTER-BMC MACH PARCEL POST
1,764,386	524,670	3,218,252	STD B BCODE INTRA-BMC PARCEL POST
5,010,873	1,483,364	12,338,307	STD B ORIGIN BMC PRES INTER-BMC MACH PARCEL POST
2,505,788	892,668	3,281,993	STD B ORIGIN BMC PRES BCODE INTER-BMC MACH PARCEL POST
258,402	38,577	225,283	STD B ORIGIN BMC PRES INTER-BMC NONMACH PARCEL POST
6,979,910	1,666,912	9,072,210	STD B BMC PRES INTER-BMC MACH PARCEL POST
6,219,865	1,598,280	6,271,065	STD B BMC PRES BCODE INTER-BMC MACH PARCEL POST
4,974,733	311,613	8,156,433	STD B INTER-BMC NONMACH PARCEL POST
39,220,411	13,244,629	70,119,888	STD B DESTINATION BMC PARCEL POST
1,986	662	693	AGEN STD B DESTINATION BMC PARCEL POST
905	44	1,239	CONGR FRANK STD B DESTINATION BMC PARCEL POST
100,070,002	35,287,889	211,132,781	STD B BCODE DESTINATION BMC PARCEL POST
1,793,408	908,583	4,008,949	STD B DESTINATION SCF PARCEL POST
10,570,255	7,535,013	42,042,226	STD B DESTINATION DELIV UNIT PARCEL POST
1,123,099	102,301	1,054,036	STD B BMC PRES INTER-BMC NONMACH PARCEL POST
4,576,132	660,102	31,748,235	STANDARD (B) INTRA-BMC ALASKA BYPASS PARCEL POST

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORY OF UNITED PARCEL SERVICE

UPS/USPS-T36-13. Refer to page 14 and Attachment H of USPS-T-36. Explain in detail why an average machinable and non-machinable savings should be applied in creating DDU rates when a surcharge is proposed to be applied to non-machinable DBMC parcels.

UPS/USPS-T36-13 Response.

The decision to employ an average was based on the lack of empirical data with which to make informed assumptions regarding the proportion of non-machinable parcels. I would also point out that the proportion of non-machinable DBMC parcels is 5.1 percent, which means that the effect of inclusion of these pieces is relatively small. Moreover, this effect is further mitigated by constraints imposed during the final stages of rate design.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT
TO FOLLOW-UP INTERROGATORY OF UNITED PARCEL SERVICE

UPS/USPS-T36-14. Refer to your response to UPS/USPS-T36-12. Are OMAS revenue, pieces and weight included in the RPW data extracts provided in the Attachment your Plunkett response to UPS/USPS-T36-12? If so, in which category or categories are the OMAS data included?

UPS/USPS-T36-14 Response

The OMAS Parcel Post data are reported in the RPW report under the following

RPW Mail Category Codes:

4101 Agency Std B Inter-BMC Machinable Parcel Post

4102 Frank Std B Inter-BMC Machinable Parcel Post

4161 Agency Std B DBMC Parcel Post

4162 Frank Std B DBMC Parcel Post

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT
PRESIDING OFFICER'S INFORMATION REQUEST 3, QUESTIONS 6-9

7. Please refer to USPS-T-36, Attachment G. (a) On page 4, "DESTINATION SCF PARCEL POST Test Year Transportation Costs and Savings by Zone and Weight Increment," the source given at the bottom of the page is DBMC cube per piece from Attachment F. However, the actual cube per piece figure used in the formula is the Inter-BMC cube per piece from attachment F. Please reconcile this apparent anomaly. (b) On page 5, "DESTINATION DELIVERY UNIT PARCEL POST Test Year Transportation Costs and Savings by Zone and Weight Increment," the source given at the bottom of the page is DBMC cube per piece from Attachment F. However, the actual cube per piece figure used in the formula is the Intra-BMC cube per piece from attachment F. Please reconcile this apparent anomaly. (c) Please discuss the rationale for using intra-BMC, inter-BMC, or DBMC cube per piece data to calculate transportation costs for DSCF and DDU. (d) Would an overall parcel post cube per piece better reflect the source of the DSCF and DDU volume? Why or why not?

Question 7 Response.

a & b. The sources were mislabeled and you have identified the correct sources.

c. & d. Ideally, the cube per piece relationships for the DDU and DSCF rate categories would be known, and reliance on a proxy would not be necessary. Intuitively, one might expect the physical characteristics of DBMC parcels to more closely approximate those of DDU and SCF because mailers shipping these pieces have presumably determined that worksharing is preferable. As a practical matter, the choice of cube/piece values for these rate categories has no impact on final rates due to the constraints that I have employed for the newer rate categories. As mentioned in my testimony, these constraints were employed in part because of the lack of empirical data, such as cube per piece, with which to judge the effect of the Docket No. R97-1 rates.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT
PRESIDING OFFICER'S INFORMATION REQUEST 3, QUESTIONS 6-9

8. Please refer to the response of USPS Witness Plunkett to Presiding Officer's Information Request No.1, Question 10. USPS LR-125, H1 does not include the revenue and revenue adjustment factors for parcel post that have been provided in prior year's billing determinants. Please provide these figures.

Question 8 Response. A copy of the worksheet used in the preparation of parcel post billing determinants has been attached.

ATTACHMENT TO WITNESS PLUNKETT'S RESPONSE TO POIR 3 QUESTION 8

Calculation of Parcel Post FY 1998 Revenue Adjustment Factors

Revised RPW for FY 1998

	Revenue	Pieces
Intra-BMC	$110,021,364	40,189,365
Intra-BMC OMAS	-	-
Inter-BMC	290,905,970	63,060,966
Inter-BMC OMAS	6,898,432	1,253,092
DBMC	527,778,564	209,409,172
DBMC OMAS	1,624,524	303,822
Alaska Bypass	10,445,658	1,931,382
Combination Enclosures	270,851	
Total	$947,945,363	316,147,799

Billing Determinant Calculated Revenue for FY 1998

	Revenue
Intra-BMC	$107,577,840
Inter-BMC	298,596,059
DBMC	513,566,486
Total	$919,740,385

Adjustments to Billing Determinant Revenue for FY 1998

	Revenue
OMAS	$8,522,956
Alaska Bypass	10,445,658
Combination Enclosures	270,851
Pickup Revenue	234,792

Revenue Adjustment Factors for FY 1998

Intra-BMC	102.21252138%
Inter-BMC	97.36849581%
DBMC	102.76732967%
Total Parcel Post	100.94925930%

Sources and Derivations: RPW revenue from RPW revenue adjustment reports. Calculated revenue from FY 1998 volumes times R94-1 rates. Revenue adjustment factor for intra-BMC calculated by removing prorated share of pickup revenue RPW intra-BMC revenue, then dividing by the billing determinant calculated revenue for intra-BMC. Revenue adjustment factor for inter-BMC calculated by removing prorated share of pickup revenue from RPW inter-BMC revenue, then dividing by the billing determinant calculated revenue for inter-BMC. Revenue adjustment factor for DBMC calculated by dividing RPW DBMC revenue by billing determinant calculated revenue for DBMC. Revenue adjustment factor for all of parcel post calculated by removing OMAS, Alaska Bypass, combination enclosures, and pickup revenue from the RPW total revenue figure, and dividing by the sum of the billing determinant revenues.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT
PRESIDING OFFICER'S INFORMATION REQUEST 3, QUESTIONS 6-9

9. LR USPS-I-62, attachment K, "REVENUE ADJUSTMENT," states, "For calculating the unadjusted revenue, Alaska Bypass revenue, OMAS revenue, and revenue from combination enclosures were projected to remain the same percentage of total parcel post revenue, excluding fees, in the test year as they had been in the base year." (a) Please confirm that there is no OMAS volume in Intra-BMC. (b) Please explain the rationale for taking the percentage of OMAS revenue from total parcel post rather than from the inter-BMC and DBMC categories. (c) Please confirm that Alaskan bypass volume is only found in the intra-BMC category. (d) Please explain the rationale for taking the percentage of Alaskan Bypass revenue from total parcel post rather than from intra-BMC.

Question 9 Response.

a. Confirmed.

b. The decision to use total parcel post revenues to project OMAS and Alaska bypass revenues was based on a desire to conform to established conventions, and because total parcel post revenue, because it is larger, represents a more stable basis for the projection of these revenues. It is possible to project these volumes from the rate categories with which they are associated.

c. Confirmed.

d. See response to part b.

CHAIRMAN GLEIMAN: Is there any additional written cross-examination for this witness?

There doesn't appear --

MR. REITER: Mr. Chairman, I know it looks slightly unusual, but Mr. May asked me that if he didn't make it here this morning, that I, on his behalf, ask that the witness' response to Parcel Shippers Association Number 3, which was filed yesterday, be entered into evidence.

CHAIRMAN GLEIMAN: I believe we can handle that. If you would provide the copies to the court reporter, I will direct that the material be entered into evidence and transcribed into the record.

[Additional Written Cross-Examination, PSA/USPS-T-36-3 was received into evidence.]

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, D.C. 20268–0001

POSTAL RATE AND FEE CHANGES, 2000	Docket No. R2000–1

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS PLUNKETT TO INTERROGATORY OF PARCEL SHIPPERS ASSOCIATION (PSA/USPS–T36–3)

The United States Postal Service hereby provides the response of witness Plunkett to the following interrogatory of the Parcel Shippers Association: PSA/USPS–T36–3, *filed on* April 19, 2000.

The interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

Daniel J. Foucheaux, Jr.
Chief Counsel, Ratemaking

Scott L. Reiter

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(202) 268–2999; Fax –5402
April 26, 2000

RESPONSE OF WITNESS PLUNKETT TO FOLLOW-UP INTERROGATORY OF PARCEL SHIPPERS ASSOCIATION

PSA/USPS-T36-3. Please refer to Witness Eggleston's answer to PSA/USPS-T26-7 where she provides mail processing cost differences for oversized parcels using 5.00 as the input cube of oversized parcels. Please provide proposed rates based upon the mail processing cost differences for oversized parcels that Witness Eggleston provided in response to PSA/USPS-T26-7.

PSA/USPS-T36-3 Response.

Attached is a table showing the rates that result from plugging witness Eggleston's errata into my rate design worksheets. However, I would point out that the forecasts and revenue assumptions that have been incorporated into my rate design do not reflect these changes. Because oversize pieces account for a small share of total volume, the effect on total revenue and or other rates would be likely to be minimal. I would add that this is an interim stage in rate development, the rate effects of these changes on volume forecasts and the roll forward would have to be examined in order to make an informed judgment on whether the resulting rates are correct.

Attachment to Response to PSA/USPS-T36-3

Effect of Change in Oversize Cube on Oversized Parcel Post Rates

Intra BMC	Proposed Rates	Proposed Rates w. Errata	Change
Local	$ 19.82	$ 19.04	$ (0.78)
Zones 1 & 2	$ 28.99	$ 27.85	$ (1.14)
Zone 3	$ 28.99	$ 27.85	$ (1.14)
Zone 4	$ 28.99	$ 27.85	$ (1.14)
Zone 5	$ 28.99	$ 27.85	$ (1.14)

Inter BMC	Proposed Rates	Proposed Rates w. Errata	Change
Zones 1 & 2	$ 34.75	$ 34.07	$ (0.68)
Zone 3	$ 38.94	$ 38.18	$ (0.76)
Zone 4	$ 45.10	$ 44.22	$ (0.88)
Zone 5	$ 54.87	$ 53.79	$ (1.08)
Zone 6	$ 66.41	$ 65.11	$ (1.30)
Zone 7	$ 82.14	$ 78.92	$ (3.22)
Zone 8	$ 108.13	$ 103.89	$ (4.24)

Parcel Select	Proposed Rates	Proposed Rates w. Errata	Change
DDU	$ 8.69	$ 8.69	$ -
DSCF	$ 12.14	$ 11.99	$ (0.15)
DBMC			
Zones 1 & 2	$ 16.66	$ 16.66	$ -
Zone 3	$ 24.55	$ 22.73	$ (1.82)
Zone 4	$ 30.24	$ 28.00	$ (2.24)
Zone 5	$ 30.24	$ 30.24	$ -

DECLARATION

I, Michael K. Plunkett, declare under penalty of perjury that the foregoing answers are true and correct, to the best of my knowledge, information, and belief.

Dated: 4/26/00

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon all participants of record in this proceeding in accordance with section 12 of the Rules of Practice.

Scott L. Reiter

475 L'Enfant Plaza West, S.W.
Washington, D.C. 20260–1137
April 26, 2000

MR. REITER: I have them.

CHAIRMAN GLEIMAN: And I would like to note that this is an unusual level of comity, that is with an i-t-y at the end.

MR. REITER: Then the record will reflect that Mr. May owes me one.

[Laughter.]

CHAIRMAN GLEIMAN: I will let you bring that matter up with him, I won't.

Is there any further additional written cross-examination?

[No response.]

CHAIRMAN GLEIMAN: If not, then that moves us along to oral cross. Four parties have requested oral cross-examination of this witness, Florida Gift Fruit Shippers Association, the Office of Consumer Advocate, Parcel Shippers Association, and United Parcel Service.

Is there anyone else who wishes to cross-examine this witness?

[No response.]

CHAIRMAN GLEIMAN: If not, then, Mr. Wells, when you are ready, you may begin your cross-examination.

MR. WELLS: Thank you, Mr. Chairman. For the record, I'm Maxwell Wells, appearing on behalf of Florida Gift Fruit Shippers Association.

CROSS EXAMINATION

BY MR. WELLS:

Q Good morning, Mr. Plunkett.

A Good morning.

Q Mr. Plunkett, turn, if you will to Florida Gift Fruit Shippers Association Interrogatory T-36-1.

A I have it.

Q And Part A of that interrogatory was to identify the costs which are included as weight-related transportation handling costs.

Your response does not identify any costs, so would you now identify the costs for which this two cents per pound is designed to cover?

A Well, as indicated in my response to Part A of that interrogatory, in incorporating the two-cents charge for weight-related non-transportation handling costs, I was complying with what I perceive to be a longstanding convention in ratemaking for Parcel Post, which is to impose the two cents in recognition of costs which, ~~the~~ though difficult-to-quantify, are assumed to be borne by heavy-weight pieces traveling through the Postal Service processing and distribution network.

Q Your response says that these are, quote, "presumed," end quote, to be caused by weight.

My question is for you to identify any costs that

are caused by weight.

A By that, do you mean costs apart from transportation costs?

Q Sortation, mail handling and delivery costs.

A Well, as I believe I indicate, that two-cent per pound charge has been imposed historically to account for costs which, again, though not perhaps easily measured, are recognized to be caused by parcels which are relatively heavy.

Q And can you identify any costs of sortation, mail handling and delivery costs which are caused by weight?

A If, by any costs, you mean study which can quantify what those costs are, or any empirical data which could give rigorous quantification to such costs, I'm not aware that any exist.

Q No study exists?

A I'm not aware of one that would support that.

Q And my question to you is, can you identify, without quantifying, any costs that are caused by weight?

A Again, not beyond what I have included in my rate design, which is the two-cent per pound charge which has been used, as I indicated, since R84.

Q Well, is the answer to my question that you cannot identify any costs that are caused by weight?

A Well, as I indicate, my view is that that two-cent

charge recognizes that there are costs caused by weight, and I view that as a form of identification of such costs.

Q And you cannot identify any costs that are caused by weight; can you?

A Well, I can't link that two-cent charge to a specific study or a specific set of empirical data, but my assumption in designing the rates was that that two-cent charge is a form of identification of the costs charged by a cost -- caused by heavier-weight parcels.

Q And you confirm that there is no study to identify any costs?

A None that I'm aware of, yes.

Q And no study to quantify any costs that are caused by weight?

A Apart from transportation costs?

Q Apart from transportation costs.

A None that I'm aware of.

Q All right. Well, if there's no study and you can't identify what costs are involved, how is the two-cents per pound determined?

A Well, as I indicate, that two-cent charge has been around since R84, long before I became involved in ratemaking, in general, or Parcel Post, specifically.

But in thinking about the way such pieces are processed in processing and distribution centers, I mean, I

don't think it's difficult to recognize that if somebody's standing at a belt, for example, moving parcels from point to point over an eight-hour shift, I think it's reasonable to assume that if they're moving 60-pound parcels as opposed to 15-pound parcels, they'll be able to move more of them in an hour if they're 15 pounds, than if they're 60 pounds.

And over an eight-hour shift, maybe a considerable number more for the lighter-weight parcels.

And I think what this two-cent per pound charge recognizes, is that those things which, though perhaps difficult to model or quantify, recognize an implicitly and intuitively sensible relationship between weight and cost.

Q Is this conveyor that you refer to moving at a constant speed?

A My knowledge of processing operations is somewhat limited, but my understanding is that there are operations in which belts move and operations in which belts are stationary while processors move material off those belts.

Q But the conveyor moves at a constant speed; doesn't it?

A Not in all cases, no.

Q Well, can you cite any example where the speed of the conveyor varies according to the weight of the parcel?

A Certainly. For example, in opening unit operations in processing and distribution facilities, often

conveyors are dumped onto a loader which then sends the container filled with material up onto a belt which then stops while employees unload parcels and other mailable matter from that belt.

While they're unloading it, that belt is stationary, and the rate at which they move that belt along will depend on how quickly they're able to unload and then reload that belt, which, again, this two-cent charge indicates, is at least, in part, variable with the weight of the material that they are handling.

Q And when the belt is moving, does it move at variable speeds or at a constant speed?

A I'm not familiar enough with operations to know how those belts are adjusted.

Q Actually, the belt, the conveyor is loaded while it's moving; isn't it?

A In some cases, but not all.

Q In what case is it not?

A Again, I'm not an expert in processing operations. I believe that depends on the nature of the material that's being handled, and the number of people working the belt.

Q Well, if you don't know how the two cents per pound was determined, and you don't know any -- can't identify any costs that are covered by the two cents per pound, does the two cents per pound produce too much or too

little?

A I'm satisfied that based on what I know about operations, in general, and what I know about background on Parcel Post rate design, that there is a relationship between weight and cost beyond what's included in transportation charges, while no study or quantifiable empirical data exists to support that.

However, to make an informed judgment about whether or not two cents is a precise number or whether or not the precise number ought to be higher or lower, I would find it difficult to make a judgment like that in the absence of such empirical data, or a study to support such a judgment.

That's why, in rate design in this case, I've conformed to the two-cent convention that's been in use.

Q The simple answer is, you do not know the adequacy or inadequacy of the two cents per pound to cover the unidentified, unquantified costs related to weight of parcels; is that right?

A I would make a distinction between what I can claim to know, and what may be provable by either study or empirical data.

What I know is that this charge has been in place for 16 years, approximately, during which time it has at least been demonstrated to be a useful way to develop rates

for Parcel Post, such that those rates have remained stable and have satisfied the Commission and the Postal Service that the rates using that two-cent convention conform to the statutory ratemaking criteria.

Again, that is perhaps a different level of knowledge than can be gained by rigorous proof using empirical data, but it satisfies me in designing rates in this case.

Q Do you know the empirical data that was used to establish the two cents per pound in Docket R84-1?

A I was not able to uncover in the research I conducted in this case.

Q You mean you were not able to identify any empirical data?

A No.

Q And in your use of the two cents per pound, all you did was do what had been done before?

A In this case, yes.

Q In subparagraph (e) of the interrogatory I asked you to identify the additional handling and cost to support and justify a rate element of 80 cents for a 40 pound parcel which amount to 20 cents for a 10 pound parcel. You did not directly respond to that question and would you do so now?

A Well, I guess I refer back to the example I cited earlier where though I am not aware of a study or empirical

data that would support this, if you think about somebody standing at a belt for an eight-hour shift, moving parcels back and forth, the time it takes to move a single 10-pound parcel may not vary greatly from the time required to move a single 40 pound parcel, but over the course of an eight-hour shift I would contend that a given operator is able to move many more 10 pound parcels than 40 pound parcels, and that in my understanding is what that two cent charge is intended to account for.

Q And the reason that is, according to your testimony, that the belt moves at a different speed?

A It really -- in my view it really has little to do with the speed of the belt, which I believe in virtually every case can be regulated by the operators.

In my view what it has to do with is the simple fact that for a given individual moving 40 pound parcels is much more difficult than moving 10 pound parcels, and over the course of an eight-hour shift, they are liable to be able to move many more 10 pound parcels than 40 pound parcels.

Q But you do not know any data to support that belief?

A I am not aware of any study that attempted to quantify that, no.

Q And you are not experienced and knowledgeable in

connection with operations of the Postal Service?

A I've worked the belts before though. It's been awhile.

Q For transportation costs there has been established a relationship between weight and cube of a parcel. Is that the same relationship assessed for non-transportation costs?

A Well, since I suppose we are talking about the same parcels, I am not aware of any reason why there would be a difference between the weight-cube relationship for parcels being processed and the weight-cube relationship for parcels being transported, since I believe in most cases we are talking about the same universe of parcels.

Q Can you identify any costs where the size of cube of the parcel may create a difference in nontransportation handling costs?

A Could you repeat that, please?

Q Can you identify any costs where the size or cube of a parcel will have a different effect on the nontransportation handling costs?

A I guess I am having difficulty understanding the question. Could you say that one more time?

Q Identify any costs where the size or cube of a parcel creates a difference in the nontransportation handling cost.

A Well, for example, in Parcel Post we have separate rates for pieces that exceed 108 inches in width and girth and that is predicated on cost differential that arises because of differences in size having nothing to do with weight.

Q Your answer to the question then is you don't know of any such costs, is that right?

A No -- my answer is that yes, I do. I believe --

Q Well, if you do, please identify the costs which differ according to the size or cube of the parcel for non-transportation handling costs.

A I believe, if my citation is correct, I believe those costs are quantified in the work papers and attachments of Witness Eggleston, Attachments I and Attachment A.

Q And would you identify for the record what costs those are -- not the amount but identify the costs involved.

A Those are the nonmachinable cost differences for various rate categories of Parcel Post -- for pieces exceeding 108 inches.

Q What type of costs are involved where there is a difference according to the size or cube of the parcel?

A Do you mean what Postal Service operations are included in those cost estimates?

Q No. What type of costs are included in your

determination that there is a difference in non-transportation handling costs resulting from differences in cube or weight or size of the parcel.

A I think my answer to that question is only those which have been identified in the cost studies performed by Witness Eggleston on which I have relied in developing surcharges for nonmachinable oversized parcels.

Q But you know of no such costs that are applicable to support the two cents per pound?

A Those don't relate to the two cents per pound, no.

Q Okay. In your response to subpart (f) of Interrogatory 1, you said, "To the extent that cube and size are positively correlated with weight, these costs could be said to be positively correlated with these variables."

Explain what you mean by that response, please.

A Well, I mean there is an observable relationship between the weight of a parcel and the size or the cube of a parcel. The convention that has been used in ratemaking for Parcel Post imposes a charge per pound. To the extent that weight and cube are positively correlated, it would be possible to calculate a per cube charge that would result in the same costs being applied.

However, my understanding is that because is a much easier thing to measure and quantify and on which to build rates that the convention is used and applied to per

pound charges rather than per cubic size charges.

Q Are you saying that this is done for convenience rather than for accuracy?

A I wouldn't necessarily say that either is ~~either~~ more or less accurate than the other. What I would say is that in administering and developing rates and in making rates that are understandable by the customers use of weight as a basis for rates is in general a better method than trying to use elements such as size and/or cube.

Q Is this true even though you do not know the relationship between weight and cube?

A I didn't say that we don't know it.

Q Well, do you know that?

A I believe that such numbers exist but I am not aware of what they are. I believe that we do know in general the relationship between cube and weight, but I am not qualified to discuss that.

Q Look again at your answer to Number (f). You say there "these costs" -- now what costs are you referring to in "these costs"?

A The two cent per pound nontransportation handling costs.

Q Well, two cents per pound is not cost. That is an element of the rate so when you say "these costs" what costs are you referring to?

A Well, if I may read the interrogatory, part (f) says, "Do you agree that it would be more appropriate to describe these additional handling costs as being size or cube related?"

Since I am responding directly to that part of that interrogatory, I employed the term "costs" as it was used in that interrogatory, which I assumed to refer to the two cents per pound handling charges used to develop the Parcel Post rates.

Q Well, when you say "these costs," and referring to the interrogatory, is it correct that these costs mean these additional handling costs?

A I guess one could say that.

Q And these additional handling costs are costs which you cannot identify?

A I disagree with that characterization. I think they have been identified, though no study or empirical data that I an aware of can rigorously quantify those costs.

Q Well, Mr. Plunkett, you say you have identified these costs, but I repetitively have asked you to please identify the costs for the record. You say 2 cents per pound covers them, but what are the costs for which the 2 cents per pound is designed to cover?

A Well, other than the kinds of judgmental and anecdotal examples that I have given already, I am not aware

that there is any other supporting documentation that describes those costs.

Q Then in your response you say they are positively correlate with those variables. Now, "those variables" mean what?

A I am going to clarify. The term "those variables" refers to cube and size, as was put forth in that part of the interrogatory. And I would like to read, in part, my response to that part of that interrogatory where I say, "to the extent that cube and size are positively correlated with weight, these costs could be said to be positively correlated with those variables." Meaning, to the extent that there is a relationship between cube and/or size and weight, then, by definition, any costs which are presumed to vary with weight, mathematically must also vary with cube and/or size. That is -- what I am expressing there is strictly a mathematical relationship. And, again, predicated on the assumption that cube and size are positively correlated with weight.

Q Is there a reason why the unidentified, unquantified costs that relate to weight, size or cube should not be recovered by the same cube weight relationship used for transportation costs?

A Well, these costs are intended -- these costs and/or charges, however we refer to them, are intended to

capture costs apart from transportation costs which do reflect size, weight and cube relationships. These are intended to recover handling costs, not transportation costs.

Q But shouldn't these costs be recovered in the same manner that the transportation costs are, with the weight cube relationship?

A Not necessarily. While I am not an expert on transportation costing, by any means, my understanding is that, in many cases, transportation costs are incurred in accordance with contractual arrangements which specify the need for specific cubic capacity to transport parcels. Therefore, there is an observable relationship between the cube and the cost of transportation which does not necessarily obtain with handling costs, which are primarily labor costs.

Q And these non-transportation handling costs, which you can identify, and you cannot quantify, but you now say that those costs do not have relationship to cube?

A I don't think I said that. I think what I said is there may be one, but I think there are also reasons why you would not necessarily want to treat those costs in the same way that we treat transportation costs, because the way in which the Postal Service incurs those costs is entirely different.

Q Well, you are referring to principally labor costs?

A In the case of handling, yes.

Q And those are incurred on a per hour basis?

A Generally, yes.

Q And parcels of different sizes take a different amount of time for handling, is that your testimony?

A I don't believe I testified to that.

Q Well, do you agree that parcels of different size require different amounts of time to handle?

A I don't really have any basis on which to either confirm or reject that statement.

Q So, if that is true, that is not a part of the cost that you intend to cover by the 2 cents per pound?

A Size independent of other variables?

Q Weight, size, cube, they are all related, aren't they?

A Well, I want to make sure I am precise in my use of the term "size." What exactly do you mean by size of a parcel, length, width, girth, cube?

Q I believe that size is defined as being the measurements, the outside measurements of a parcel.

A The external measurements. And is your question, is there an observable relationship between the size and the cost of handling the parcel?

Q That is my question.

A I am not aware of any study, and, again, excluding for the moment transportation costs, I am not aware of any study that has attempted to isolate size or dimensions as a specific cost driver for Parcel Post.

Q Can you identify any reason why the cube weight relationship, which has been calculated and used in the allocation of transportation costs, should not also be used for allocation of non-transportation handling costs which are caused by differences in weight?

A Only the ones I have given, which is that many transportation costs -- many transportation contracts, my understanding is the costs of those contracts is driven by the cube, the cubic capacity of the vehicle used to transport the parcels. So there is a direct relationship between costs and cube for such contracts.

The same direct, observable relationship does not necessarily obtain when you are talking about labor costs which are incurred on a per hour basis and, therefore, do not allow such a precise -- such a precise quantification of the relationship between cube and costs.

Q Is the 2 cents per pound designed to cover differences in labor costs of handling parcels of different weights?

A All handling costs, but, presumably, the vast

majority of such costs are labor costs.

Q Can you identify any costs other than labor costs for which the 2 cents per pound is designed to cover?

A Again, since this is not based on any study or empirical data that I am aware of, I can't point to anything specific. I would suppose, and maybe assume that a relatively minor component of such costs may be things like the additional equipment required to handle heavier pieces, but I am not aware of anything that would explicitly delineate such costs.

Q Are there any other types of costs that you would include?

A Presumably this incorporates all handling costs independent of transportation, so it may include other costs, but I am not able to determine which costs those would be.

Q You cannot identify them?

A No, I cannot.

Q Now, you say additional equipment required to handle parcels of different weights. What equipment are you referring to?

A Processing equipment, the rolling stock used to transport materials within facilities, things like that.

Q You say what within the facilities?

A Rolling stock, cages, hampers, things used to

transport parcels within facilities .

Q How does the rolling stock vary according to the weight of the parcel?

A I am not, and, again, I will have to qualify my response by saying that I am not aware that there is a study that can isolate such costs, but I suppose the same presumed relationship exists. Heavier parcels, to the extent that they impose greater demands on an operator, could be said to impose greater demands on the equipment required to handle it or carry it.

Q Because of the size of the parcel?

A Because of the weight.

Q What other way? You say different ways?

A I'm sorry?

Q Are the differences in handling in the rolling stock because of the size or weight of the parcel?

A Again, I don't know of any study that would quantify that. There may be reasons why they need to vary with both, but I'm not sure of that.

Q Turn to your response to Interrogatory 36-5.

A I have it.

Q Here, this interrogatory is predicated on a non-machineable, solely because of weight.

What is the justification for the additional surcharge, in view of the rate element of two cents per

pound?

A The non-machineable surcharge is intended to cover the costs associated with a specific type of handling, namely that parcels cannot be processed on mechanized equipment, and must therefore receive greater handling.

I'll, again, refer back to the example I used earlier, and ask you to think about operators working at a belt.

And let's assume for the purposes of my response here that every parcel that they handle would be machineable, other than because of weight.

And I'll say the same thing I said earlier: If those operators are handling ten-pound parcels, let's assume that they're uniform in size, they will be able to handle more of those than if they were handling identically-sized and cubed 40-pound parcels.

Again, these are -- for the purposes of this response, this is not an operation that necessarily has anything to do with machinability, however, it's one in which I think it's easy to see that there is a relationship between the weight of the parcel and the amount of effort, and/or labor required to process those parcels.

Q If a 40-pound parcel, according to your testimony, has -- pays two cents a pound or 80 cents per piece, while they're also paying non-machineable surcharge?

A Well, I'll again refer to that same example. The surcharge covers specific types of handlings costs which may or may not have anything to do with machinability. The non-machineable surcharge is in place to cover costs that the Postal Service incurs because machines cannot go through certain mechanized operations and must therefore receive greater manual handling.

Q Aren't those the same costs that you describe as being covered by the two cents per pound?

A Oh, no, I don't think so. An in the example I gave a moment ago, I think, again, that's an operation or a type of operation where the costs of handling specific parcels could be said to have nothing to do with machinability, per se.

Q All right. To your Attachment G, page 1, which is Intra BMC Transportation Costs, it was propounded to you, our interrogatory T-36-2, which was referred to Witness Eggleston, but these transportation costs are included in your testimony.

A Yes.

Q Do transportation costs vary with distance?

A In this particular rate category, no.

Q What?

A Well, I should not say that. There is a difference between local and other zones.

Q My question was, simply, do transportation costs vary with distance?

A Again, I'm not an expert in transportation costs, but my response to that would have to be that while there is a relationship between cost -- between transportation costs and distances, it is not uniform and it is not in all cases linear.

Q And you do not know whether transportation costs are greater if you're driving 50 miles, than if you're only driving ten miles; is that right?

A Here, I guess it depends on what you mean by costs. Again, I'm not an expert on transportation costs, and it may be that in some cases the costs incurred by the Postal Service do not change when a parcel goes 50 miles, as opposed to ten miles.

Q Do you drive an automobile?

A Sometimes, yes.

Q Does it cost you any more to drive 50 miles than it costs you to drive ten miles?

MR. REITER: Mr. Chairman, I am going to object now. I think the witness has made it very clear he's not an expert on this subject. I don't think that his personal driving experience is what he's here to testify about.

If Mr. Wells has a specific question about his rate design, I'm sure he can help him with that.

CHAIRMAN GLEIMAN: Well, I think I'm going to let Mr. Wells go a little bit further, because I think he's trying to establish or develop a predicate for a question that he's going to ask.

And if he doesn't get to a meaningful question, but only wants to know which route the witness takes to and from work or how long it takes him or something like that, then, you know, we'll rule on your objection, and we'll rule in your favor at that point in time. But let's let it go a little bit and see where it goes.

MR. WELLS: Thank you, Mr. Chairman.

BY MR. WELLS:

Q Do you have the question in mind?

A I'll respond to that, if I can. I'll give two examples: If I have to drive to and from the airport in my personal vehicle, I bear all those costs -- gasoline, maintenance, to the extent that I would incur any -- so, there is an observable and identifiably linear, approximately linear relationship between the distance that I travel and the costs that I incur, such that if I travel six miles to do this, it costs more than if I travel four.

However, if for the same trip, I decide that I want to hire a limousine and I hire that limousine for a two-hour period, that contract may allow me to travel any distance during that two-hour period, such that for the sake

of argument, my costs are $100, whether I travel 20 miles or if I travel 60 miles.

And assuming there are no differences in what's being carried over those distances, in such a case, there is no observable relationship between distance and cost.

And since in many cases, the Postal Service has contracts on which such costs are predicated, it is certainly conceivable that a contract allows for a variance in distance which does not have an effect on costs.

Q It's conceivable, but you do not know?

A I do not know enough about the Postal Service transportation costs to answer that question.

Q Do you know whether or not a parcel destined to Zone 1 and 2 travels a longer distance than a parcel destined for Zone 4?

A I don't know enough about our costs -- our transportation costs to answer that question.

Q I didn't ask you about costs; I asked you about distance.

A Could you repeat it, please?

Q Is there any difference in the distance that a parcel traveling to Zone 1 and 2 covers than if the parcel travels to Zone 4?

A I think the answer to that depends on where within a specific zone the piece originates and where it

destinates.

I can't give an unqualified response to that question because some of those zones are relatively large, and if you are on -- if you are at or near the line between specific zones, it's conceivable that a parcel is traveling more zones but less distance than a different parcel.

So I can't give an unqualified affirmation of that question.

Q Is your testimony that there is no difference in distance between Zone 1 and 2 and Zone 4?

A Not that there isn't any difference, but that the difference is not uniform; that for a specific parcel traveling from a specific location, it's not necessarily the case that more zones equals greater distance.

Q Can you give me an example where the distance to Zone 4 is equal to or less than the distance to Zone 1 and 2?

A Right now, I'm not able to do that, no.

Q Actually, Mr. Plunkett, isn't it true that there is more transportation service provided for a parcel destined to Zone 4 than for a parcel destined to Zone 1 or 2?

A What do you mean by transportation service?

Q Transportation service means cubic foot miles.

A Again, I can't give an unqualified confirmation of

that. In general, our rate structure is predicated on the idea that more zones equal greater distance and, therefore, greater costs. But that is not true in all cases for all inter-zone relationships.

Q Can you think of any situation where a parcel would receive less transportation, moving in intra-BMC movement, from the origin SCF to the BMC, and from the BMC to the destination SCF, than would be the case if it moved directly from the origin SCF to the destination SCF?

A A specific instance, I am not aware of any.

Q Well, isn't it necessarily true that a parcel going from the origin SCF to the BMC, and then from the BMC to the destination SCF, will move further than a parcel which moved directly between the two SCFs?

A Not in all cases. I mean it is difficult to give an unqualified response to that because it presumes some spatial relationship between those two or three facilities which will change from location to location.

Q Can you think of any circumstances where there would be less transportation moving through the BMC, for intra-BMC transportation, than there would be if it moved directly between the SCFs?

MR. REITER: Mr. Chairman, I am still waiting for that rate design question, and maybe I could suggest that if Mr. Wells continues to have questions about transportation

costs for parcels, that he could pursue those more effectively with Ms. Eggleston.

MR. WELLS: Mr. Chairman, transportation costs are part of this witness' testimony, and either he can respond to questions or I will move to strike his testimony.

MR. REITER: Well, I don't think that the incurrence of transportation costs are part of this witness' testimony, Mr. Chairman. He takes costs that are established by other witnesses and designs rates based on those costs.e

CHAIRMAN GLEIMAN: Well, I guess the witness can tell us on the record, since your statement can't be testimony, that all he did was take what other people give him, and that he may or may not understand it, and may or may not have questioned it, and, you know, we will go from there.

MR. WELLS: Mr. Chairman, if the witness will say he didn't prepare it and he doesn't understand it, I am willing to accept that and I will abandon these questions.

THE WITNESS: Could you --

MR. REITER: I don't believe that was my argument, Mr. Chairman, but I will let the witness go ahead and answer if Mr. Wells has a further question.

THE WITNESS: Could you repeat the question, please?

BY MR. WELLS:

Q Well, I am not sure if it is the same question, but the question is, can you identify the circumstances under which a parcel will receive less transportation through intra-BMC, moving through an intermediary BMC facility, than if the parcel moved directly from the origin to the destination?

A I have not performed any analysis of such movements and/or the costs caused by such movements in developing my rates. I believe that work was done by Witness Eggleston, which then became incorporated into my rate design.

Q And you do not know?

A Not specifically, no.

Q And, similarly, with respect to my Interrogatory 36-3, which you referred to Witness Eggleston, those are matters which, concerning transportation, for which you do not have knowledge and have to adopt whatever Witness Eggleston says?

A That's right. That is why those were redirected to her.

Q Do you know, once a parcel in intra-BMC arrives at the BMC, and a destination DBMC parcel arrives at the same BMC, do the two parcels receive the same type of handling?

A I don't know, I am not an expert on BMC

operations, and I am not qualified to answer that question.

Q You provide a difference in transportation costs for an intra-BMC parcel and an inter-BMC parcel, and a DBMC parcel from the destination BMC, is that correct?

A Do I provide?

Q Does your testimony adopt different transportation costs for those three rate categories?

A I rely on the cost estimates developed by Witness Eggleston, which differ among the rate categories, yes.

MR. WELLS: Mr. Chairman, that concludes my cross-examination. I appreciate your patience.

CHAIRMAN GLEIMAN: Office of the Consumer Advocate.

CROSS EXAMINATION

BY MS. DREIFUSS:

Q Good morning, Mr. Plunkett.

A Good morning.

Q I am Shelley Dreifuss from the Office of the Consumer Advocate.

A I knew that.

Q I think we have met before. Could you turn to your testimony at page 12, please? At page 12, you propose removing the existing one pound minimum weight requirement for pieces otherwise mailable at Parcel Post rates, is that correct?

A Yes.

Q Does that mean that a parcel of any weight below one pound can now be entered as Parcel Post?

A Yes.

Q Are there any restrictions as to the shape of the piece?

A No new restrictions. I mean the pieces would have to conform to the existing size and shape requirements that exist for parcels which heretofore could not be mailed, but no new restrictions, if that is what you are asking.

Q Well, I am wondering whether flats, for example, could be mailed as Parcel Post, flats weighing less than a pound, could they be mailed as Parcel Post?

A I don't have the DMM in front of me, I don't believe that is permissible under the DMM regulations

Q Has the DMM provision associated with this proposal been developed yet?

A Not that I am aware of, no.

Q Do you know if there has been any minimum size contemplated for these pieces entered as Parcel Post?

A Again, I am not aware that there have been any discussions about altering the existing requirements that apply to Parcel Post currently.

Q Are there minimum sizes for pieces to be entered as Parcel Post today, weighing --

A I believe there are, but I would have to check on what those are.

Q What is the reason for removing the one pound restriction?

A The main reason is to allow customers wishing to mail parcels which currently are required to use Priority rates to have an alternative rate schedule to allow them to send such materials.

Q I would like to talk about the machinability of parcels or pieces, since we don't know for sure whether they need to be parcel-shaped, the machinability of pieces weighing below a pound.

Do you know whether there are any processing difficulties on BMC mechanized equipment in handling light weight pieces?

A I'll have to again give a qualified response. I am not an expert in BMC operations, but I am not aware of any study that has attempted to isolate size as a determining factor of machinability for Parcel Post and BMC operations.

Q Are you aware of any instability of light weight pieces in being handled on the equipment that was designed for pieces two pounds and up?

A Such as would affect considerations for developing rates for parcels below two pounds explicitly?

Q Well, right now I am not focusing on the rate issue. What I wanted to ask you is whether some light weight pieces may not be able to be processed on BMC mechanized equipment because of their light weight.

A Again, I am not aware that we have attempted to identify explicit costs associated with such pieces, but again I am not an expert on BMC operations or on Parcel Post costs generally.

Q Your proposal is to allow any -- any -- parcel to be entered as Parcel Post, no matter how light that parcel is. Is my understanding correct?

A In conformity with other makeup requirements, yes.

Q Can you give me an example of some of the makeup requirements that you have in mind?

A Well, again I mean to the extent that DMM regulations incorporate size and shape restrictions on parcels, those would apply to pieces below two pounds as well, so to the extent that such restrictions exist and/or are developed, they would apply as well to such lower weight pieces.

Q One question that I have that is weight-related is if it turns out, if Postal Service were to determine that light weight pieces cannot be processed, very light weight pieces cannot be processed effectively on BMC mechanized equipment -- well, let me ask you this.

If the Postal Service were to make such a determination, does it then follow that the Postal Service would have to process such pieces manually if they could not be processed on BMC mechanized equipment?

MR. REITER: Mr. Chairman, I will object, again on the same basis.

The Witness has already said he is not an expert in BMC operations. I just don't think this is going to get anywhere and it is not focused on specifically his proposal.

CHAIRMAN GLEIMAN: I don't know if it is going to get anywhere or not, and I am willing to let counsel lay the groundwork for wherever she may be going with the line. I'll let it go a little bit longer and if it doesn't work, then we will call quits to it and, you know, having sat through a couple of weeks of hearings where witnesses have referred questions back and forth to other witnesses or suggested that counsel ask those questions of other witnesses, and having counsel interject that this isn't the right witness, it occurs to me that the next time we have a big rate case or classification case with a bunch of witnesses that we will redesign the witness stand, run it all the way back down to the back corner, and we will put a panel of witnesses up and on the spot we will have counsel, when they are told that whoever they are asking a question of isn't the right person that the right person will be

somewhere down the line at that long, skinny witness table, and they will be able to ask that question on the spot, because I think it gets confusing for counsel.

It certainly gets confusing for me trying to keep track of which question has been referred to which witness on which day or week of the proceedings.

I understand that this is complex material and that one person can't have all the answers but it may be that we need to in Year 30 re-examine how we go about doing some of this questioning in the hearing room.

Having taken more time than I should have, and the question is probably lost in my ramblings now, I am going to let counsel go on for a little bit longer.

THE WITNESS: I will ask you to re-ask the question.

BY MS. DREIFUSS:

Q Okay. Does it follow that if very light weight pieces are unstable or cannot be sorted effectively on BMC mechanized equipment that such pieces would then have to be processed manually?

A Again, I'll give the same qualification. I am not an expert on BMC operations or how the people who manage such operations would deal with such an issue. That is certainly a possible response.

An alternative response may be some adjustment of

the equipment such that it would allow easier processing of such pieces but not being an expert on BMC operations, it is difficult for me to know to the extent which of those is preferable in such a case.

Q If it turns out that light weight pieces, those that are light enough or so light that they cannot be effectively processed on mechanized equipment do have to be processed manually, are you then recommending that a non-machinable surcharge be imposed on such pieces?

A I have not recommended that. I mean similar surcharges exist for other classes, I believe, but we have not recommended that in this case.

Q Since you have not recommended it, does it mean that such pieces could be manually processed but not pay a nonmachinable surcharge?

A Well, this is a new rate category for which obviously we don't have any empirical data.

Theoretically that is possible but we have no basis on which to know that.

Q Was the determination to open up Parcel Post to pieces below one pound subject to any kind of rigorous study that you are aware of?

A Could you explain what you mean by rigorous study?

Q Well, for example, a study of BMC operations to see whether indeed such pieces could be processed by BMC

equipment?

A I don't believe a study of that kind was conducted.

Q Was any effort made to determine whether any additional costs would be incurred above and beyond two pound pieces to handle pieces below a pound?

A In support of this change in the classification? No.

Q Do you know what the reason was that parcels were restricted to one pound and up over a long period of time until the current proceeding?

A Well, throughout most of that period, I believe there was a single-piece rate for Standard A or, previously, Third Class mail, that allowed customers mailing lighter-weight material an alternative to the Priority rates which no longer exists.

So, I'm not sure to what extent, until that single-piece rate was eliminated, that the need to try to quantify that kind of relationship existed.

Q The Postal Service has permitted parcels weighing between one and two pounds to be entered as Parcel Post over a long period of time; has it not?

A I believe so, yes.

Q And to your knowledge, one-pound pieces did not -- were machineable, and it was not appropriate to charge a

non-machineable surcharge to such pieces, merely because of their one-pound weight; is that correct?

A Well, there's nothing in the existing rate structure that accounts for that, no.

Q Would you be willing to draw the conclusion then, from what you do know of BMC processing operations, that it would appear that one-pound parcels -- well, let's say one-pound parcels and also parcels weighing between one pound and two pounds, are most likely machineable, and no machineable -- no non-machineable surcharge would need be imposed on them, simply because of their light weight?

A Again, given the severely limited extent of my knowledge of BMC operations, what I would say is that based on what I know, there would appear to be little difference in, for the lack of a better term, relative machinability for parcels approaching one pound, compared to parcels approach two pounds.

Q Also on page 12, you stated that although you're proposing removing the one-pound minimum weight requirement, you haven't proposed a new rate for pieces weighing less than one pound.

Is it also correct that you haven't proposed a rate for pieces weighing one pound, one pound, exactly?

A That is also correct, yes.

Q Under your proposal, one-pound pieces will pay a

two-pound rate; is that correct?

A Yes, all pieces up to two pounds would pay the same rate.

Q On page 13 of your testimony, you state that transportation costs are incurred primarily on the basis of cube and distance, and in your discussion with Mr. Wells earlier, you said that there is an observable relationship in transportation costs between cube and weight; is that correct?

A I believe that to be the case, yes.

Q And, in fact, the rates that you propose for Parcel Post increase by one-pound increments; do they not?

A Yes, that's correct.

Q And the reason for that is, at least in part, the greater cube and the greater weight of the pieces as they increase in -- as they increase in both cube and weight?

A Again, given an assumed relationship between weight and cube, yes, that would be correct.

Q If transportation costs tend to increase as weight increases, why then did you not propose a one-pound Parcel Post rate, assuming that one-pound pieces would take up less cube in a vehicle that transports them, than a two-pound parcel would?

A Could you repeat that again?

Q If it's true that costs -- well, I'll express it a

little differently:

If it's true that costs tend to decrease as weight decreases, then why did you not propose a one-pound Parcel Post rate to reflect that phenomenon?

A Well, I'd have to give multiple reasons for that, I suppose. One is that the relationship between cost and weight between adjacent weight cells is a marginal relationship.

And in my view, the marginal difference in cost between a two-pound parcel and what a one-pound parcel would be, if we knew it, would be relatively minor, such that it did not warrant a unique rate for such parcels.

And that is compounded by the fact that as we have no empirical -- that's not the right word -- any actual experience with such parcels, we have no empirical data on which to support such a rate.

And as you indicated earlier, it is possible to conclude that very lightweight parcels may, indeed, result in some additional costs that slightly heavier parcels do not incur.

For those reasons, I thought it best to maintain the two-pound rate and apply that to all parcels below the two-pound level.

Q Well, at least for one-pound parcels and parcels weighing between one and two pounds, I thought you agreed

earlier that the Postal Service, first of all, had accepted parcels of such weight over a long period of time; you did agree that that was so, didn't you?

A Yes, I did agree to that.

Q I don't know whether I asked you this earlier, but if I didn't, I'll ask you now:

To your knowledge, has a non-machineable surcharge ever been imposed on parcels weighing one pound because they were considered to be non-machineable?

A Again, I do not believe -- the current rates do not reflect that, and I don't believe that to be the case.

Q And also I think you did say that you are not aware, based on your own experience, that parcels weighing one pound or between one and two pounds, are non-machineable. Are you aware of any such situation?

A Not in a way -- not to such an extent that it would be measurably different from parcels weighing two pounds, is the way that I believe that I answered the question.

Q So, I'd have to ask you again, since you do increase the rates of Parcel Post for every pound increment from two through 70, why did you not reflect whatever differences exist between parcels of two to three pounds, three to four pounds, and so on?

Whatever differences that exist between parcels

that are one-pound different in weight; why did you not reflect that difference as a one-pound parcel rate?

A And the reason is the one that I gave, and the main reason is that because those cost differences are marginal in nature, the marginal difference between one and two pounds would be relatively slight.

And I would point out that two pounds has been used, not just by Parcel Post, but prior to this docket, was used by Priority Mail as well.

And I think that reflects, you know, widespread acknowledgement that below a certain threshold, in this case, two pounds, the differences in costs are not sufficiently meaningful to warrant unique rates below that threshold.

Q Are the differences in cost between a two-pound parcel -- let's say a two-pound, inter-BMC parcel, and a three-pound inter-BMC Parcel Post, a three-pound inter-BMC parcel, significant?

A They're significant enough for the Postal Service to have established separate rates for two pounds versus three-pound parcels.

Q Are there differences in cost between a three- and a four-pound pair of inter-BMC parcels significant?

A I think what we're getting at here is the extent to which for specific kinds of mail, you're willing to

average costs to develop rates.

And the Postal Service's practice for Parcel Post and Express Mail and Priority Mail has been to use pounds as the increment on which to base rates, because -- primarily because for these classes of mail, customers can mail up to very large number of pounds.

For First Class mail, conversely, we use ounces as the increment upon which to base rates, because they have different handling characteristics.

And, again, in Parcel Post, the longstanding assumption has been that two pounds was, you know -- or, I'm sorry, I meant to say Priority Mail -- for example, two pounds was the level below which costs had been deemed to be sufficiently averageable that a new rate or a unique rate for pieces below one pound hadn't been warranted.

I believe -- and I would not presume to speak for Witness Robinson, but I believe that the one-pound rate that was proposed in the case of Priority Mail reflects the understanding that Priority tends to have somewhat different characteristics from Parcel Post, such that most of the lighter-weight pieces are handled as flats, rather than parcels, and, therefore, have somewhat different cost characteristics.

But we do not believe the same to be the case for Parcel Post.

Q You believe that there are significant cost differences, pound-by-pound, going from two-pound Parcel Post through 70-pound Parcel Post; is that correct?

A I wouldn't characterize it that way. What -- I'll give a somewhat absurd example:

I'll say that I think it would be obvious to everyone on this room or elsewhere that there is a large difference between a two-pound parcel and a 70-pound parcel, okay?

There is a less obvious difference between a two-pound parcel and a 20-pound parcel, but still presumably a significant difference.

You can narrow those increments as much as you want, and as you increasingly narrow those increments, the cost differences become less and less significant.

At some point, in order to have a usable rate schedule, you must make arbitrary distinctions, and/or cutoff points, below which you are willing to average costs to develop rates.

And for the Postal Service, for this particular product, the useful and useable convention has been to use pounds as the appropriate increment by which to average costs for the development of rates.

Q Turn for a minute to your Attachment I, page 5, please. There you present the rates for machineable

inter-BMC Parcel Post, and let's look at the Zones 1 and 2 rates to begin with.

A Page 5, you said?

Q Yes, page 5.

A I have it.

Q The rate difference between a two pound inter-BMC parcel and a three pound inter-BMC parcel for Zones 1 and 2 is nearly 50 cents, isn't it?

A Yes, that's right. 48 cents to be exact.

Q Right, 48 cents. Is there any reason not to reflect a similar difference between one pound and two pound parcels in the Parcel Post rate structure?

A Again, I mean would it be possible to develop a rate for a one pound parcel? Yes, it probably would. And my guess is the effect of that would be to push that two pound rate up somewhat, because you would then be taking some lighter weight pieces out of the one pound -- out of the lowest rate. But one could also argue from that reasoning, that maybe there ought to be a 2-1/2 pound rate.

But, again, the Postal Service has determined, and it has been longstanding convention for Parcel Post rates that weight increments of less than a pound serve more to complicate the rate structure than to reflect meaningful differences in costs. And in proposing that all pieces below two pounds pay the same rate, I am adopting a similar

sort of reasoning, which is that, based on what we know now, and what we expect to know during the period for which these rates will exist, I could not find a reasonable basis for proposing a rate, a separate rate for such parcels.

Q Well, you mentioned a half-pound weight increment, and I hadn't mentioned that, had I? I was not talking about adding or introducing half-pound weight increments in Parcel Post, was I?

A No, but, in theory, I mean if there is a meaningful cost difference between parcels weighing 2.4 pounds and 2.6 pounds, one could find a justification for proposing separate rates. But the Postal Service has adopted a convention in the case of Postal Service rates which is that the appropriate weight increment for setting rates is a pound and deaveraging within pounds serves more to complicate rates than to reflect meaningful differences in costs.

Q Right. I wasn't talking about deaveraging within pounds, was I? I was talking about deaveraging within a two pound increment, was I not?

A Yes, you were.

Q And that would extend to one pound parcels the same pound increment structure that you have applied to all the rest of Parcel Post, would it not?

A It would. However, given that we have no -- it

would, however, in my judgment, that was not -- extending that same rationale below two pounds would not have resulted in rates that would have reflected a meaningful difference in costs.

Q Do you know if there is any more meaningful difference in costs between two and three pounds than between one and two pounds?

A I don't believe that has been studied at all.

Q So you don't know?

A I don't have any empirical data on which to answer that question, no.

Q And since you don't know, it could be that there is as meaningful a cost difference between one and two pounds as there is between two and three pounds, is that right?

A It is conceivable, but, again, I have no basis on which to either confirm or reject that statement.

Q Are you aware that the Postal Service is proposing a new one pound Priority Mail rate of $3.45?

A Yes.

Q Chairman Gleiman discussed this with Witness Robinson, I don't know whether you are aware of any discussion he may have had with her about the one pound Priority Mail?

A I heard a little bit about it.

Q Okay. He pointed out that one pound inter-BMC parcels will have to pay $3.47, while one pound Priority Mail parcels would pay $3.45.

A Yes.

Q Are you aware of that?

A Yes.

Q Would you consider that an anomalous rate relationship?

A No, not necessarily. Again, and I will refer back to something I said a little while ago, my understanding, and, again, I don't presume to speak for Witness Robinson, my understanding is the one pound rate for Priority Mail reflects an understanding that lightweight Priority Mail volume has substantially different physical and, therefore, cost characteristics than Priority Mail weighing between one and two pounds. Primarily, that very lightweight Priority Mail is almost universally handled as flats, and, therefore, processed in different kinds of equipment.

I would also point out that Priority Mail does not travel through the BMC network, and that since it is therefore being handled in P&DCs, it is often possible to process, you know, Priority Mail weighing less than one pound on flat sorter machines. We don't know the same things about Parcel Post volume that will weight less than one pound.

Q Let's focus for a moment on the one pound inter-BMC parcel. Do you know whether a one pound inter-BMC parcel costs more to process and handle from its point of origin to its delivery at the destination than a one pound Priority Mail parcel?

A I am not aware that there is any study that would allow me to confirm that or reject that.

Q Do you know what the service standards are for Parcel Post?

A Not in detail, but I think I see where you are headed, and they are not as stringent as those for Priority Mail.

Q Generally speaking, would a Parcel Post customer expect that it would take longer for a parcel that has to travel a considerable distance to arrive at its destination, to take longer to arrive there than the customer would expect a Priority Mail parcel to take?

A In general, that is probably correct.

Q Does it not then seem anomalous that -- well, and would you say that if a parcel gets there more quickly via Priority Mail than it would via Parcel Post, that Priority Mail service is better than Parcel Post service?

A Well, they are different products. I wouldn't use the term "better" to describe the difference between one and the other because they are different products aimed at

different customer groups with different needs, sending different kinds of material. So I am not sure they are directly comparable.

Q So you don't think it is legitimate for the Postal Service to impose a higher cost coverage on a class of mail or a subclass of mail that provides better service than another class of mail, is that your position?

A I guess what I am reacting to is your use of the term "better" to describe the difference between Parcel Post and Priority Mail. Priority Mail has a given service requirement and it is promoted and sold, and processed as an expedited service. Therefore, customers who use it have very different expectations from customers who use Parcel Post. Therefore, the fact that one gets there faster than another certainly means it is faster, but I would not necessarily conclude that that is in all cases -- can be described as better.

If your expectation for a Parcel Post piece is that it get there in four days and it arrives there in three, and if your expectation for a Priority Mail piece going the same distance is that it will get there in one day and it gets there in two, would you therefore describe the Priority service as better? I would not. I would say it got there faster, but that the service that was provided, given the customer expectation for the kind of product that

it is, that the service was actually worse for the Priority piece than for the Parcel Post piece.

Q If the Parcel Post piece has a tendency to arrive one day later or several days later than the Priority Mail piece, you don't consider that worse service absolutely?

A My view is that your use of the terms "better" and "worse" in these cases is inappropriate because these are different products and not directly comparable.

Q Do you think it is a good idea to charge any more for a service which is expected, and planned, and arranged to arrive several days ahead of another service?

A All other things being equal, you would tend to price services with more rapid or more expedited service characteristics higher.

Q But it is not true in the case of these, of the one pound Priority Mail parcel versus a one pound inter-BMC parcel, is it?

A Well, all of -- if you are looking solely at the difference in the expected delivery times, Priority Mail is in most cases expected to arrive sooner than Parcel Post mail.

Q Do you think that it makes more sense to charge more for a Priority Mail parcel than a Parcel Post parcel, since it is expected to arrive sooner?

A If you held all other considerations constant,

then I would say perhaps not. However, my view is that you cannot necessarily make those assumptions.

Q I'm sorry. You are going to have to repeat. Or let me repeat my question. I will listen to your answer again. If the Priority Mail network is configured, and I am changing questions, but I know, if the Priority Mail network is configured to transport and deliver parcels more quickly than the Parcel Post network, does it make sense to charge more for Priority Mail pieces than Parcel Post pieces?

A Can you say that one more time?

Q Yes. If a Priority Mail network is configured to transport and deliver parcels more quickly than the Parcel Post network, and let's further assume that it actually does accomplish that goal, the Priority Mail network does indeed transport and deliver parcels more quickly than the Parcel Post network, does it make sense to charge more for Priority Mail pieces than for Parcel Post pieces?

A On average and all others being treated as equal, no, it does not.

Q It does not make sense to charge more for Priority Mail than for Parcel Post?

A Given the qualifications that I stated before, no, it would not.

Q And do you know whether Witness Mayes has testified that Priority Mail ought to have a higher cost

coverage than Parcel Post?

A I believe she has.

Q Do you think that the better service available in Priority Mail was part of that reason?

A I assume that it was. I'd point out that in general and in the vast majority of rate cells the prices for Priority Mail are much higher than Parcel Post, and in fact for --

Q I'm going to direct you now. I really don't want to begin a discussion about other rate cells. I was focusing merely on that one anomaly --

A But the cost coverage is predicated on more than a single rate cell.

Q Right, but I did not want to talk about any other rate cells.

What I am concerned about is the anomaly that I see between the one pound Priority Mail rate and the one pound inter-BMC rate and that is why I don't want to talk about any other rate differences. I want to talk about that one, so let's just confine our discussion to that.

On redirect I guess you can talk about other rate cells if the Chairman believes that that is a relevant discussion.

Let's go back to the one pound Priority Mail rate and the one pound inter-BMC rate. It is true that the

inter-BMC rate for a one pound parcel is two cents more than the Priority Mail rate, is that correct?

A Yes, that is correct.

Q And you don't view that as anomalous, considering that Priority Mail tends to provide better service than Parcel Post?

A If one looks solely at the value of the service that is being purchased, it would appear to be anomalous, but as I have pointed out --

MS. DREIFUSS: I think I am going to stop you right there. I have no further cross examination. I am satisfied with the answer I just received, and that puts an end to our cross examination.

CHAIRMAN GLEIMAN: I don't have to interrupt and ask you how much longer you were going to go. I think we will take our mid-morning break now. We will come back at a quarter after the hour and we will pick up at that point with the Parcel Shippers Association.

[Recess.]

CHAIRMAN GLEIMAN: At the break counsel for Parcel Shippers indicated that they would have no cross today, so that brings us to UPS.

Nobody? -- oh, I thought we were really going to move this hearing ahead quickly. Mr. McKeever, I just indicated to the assembled masses that Parcel Shippers

Association doesn't have cross. That brings us to United Parcel Service.

MR. McKEEVER: We do not have any cross either, Mr. Chairman.

CHAIRMAN GLEIMAN: Goodness gracious. That brings us to follow-up. Are there any follow-up questions? When neither Parcel Shippers nor UPS has any cross for the witness involved with parcels, it makes the Commission wonder what it is we missed -- so far. We will be told what we missed in the final analysis, I am sure.

If there are no follow-up questions, that brings us to questions from the bench. Questions from the bench? No questions from the bench?

That brings us to redirect. Would you like a few minutes with your witness?

MR. REITER: Yes, I would, Mr. Chairman.

CHAIRMAN GLEIMAN: If only I had known, we could have killed two birds with one stone. How long would you like?

MR. REITER: Ten minutes, please.

CHAIRMAN GLEIMAN: You've got 10 minutes.

MR. REITER: Thank you.

CHAIRMAN GLEIMAN: All right.

[Recess.]

CHAIRMAN GLEIMAN: Any redirect?

MR. REITER: Yes. There is, Mr. Chairman. Thank you.

REDIRECT EXAMINATION

BY MR. REITER:

Q Mr. Plunkett, Mr. Wells asked you several times to identify specific non-transportation costs related to weight. You cites some operations in which parcels of different weight required the mail handlers to work at different speeds, for instance, loading belts. Have you been able to think of any others that you might cite in response to his question?

A One other. For example, if you have a carrier on either a foot route or a route where they are required to dismount to make parcel delivery, if a carrier has two 3-pound parcels, it is reasonable to assume they could effect delivery of both 3-pound parcels with a single trip. However, if that same carrier has two 50 or 60 pound parcels, it is doubtful they could manage both on a single trip, therefore, they would have to make multiple trips to and from the delivery vehicle to the customer's door.

Q Mr. Wells also asked you if you knew the relationship between cube and weight, and I think you discussed with him whether that relationship has been studied. Do you have anything you wanted to add?

A I can add that it has been studied and that cube

weight relationship exists in the testimony of Witness Eggleston.

Q You also discussed with Mr. Wells how cube is related to non-transportation costs. Do you know whether the Postal Service has attempted to address non-transportation costs associated with cube?

A Could you repeat that?

Q Yes. How have you, in your rate design, attempted to address the association of non-transportation costs with cube?

A Oh, well, I mean I cited in my response to Mr. Wells the oversize rate. In addition, there is a balloon rate that applies to lightweight large cube pieces under 15 pounds. This is intended to reflect the additional costs imposed by lightweight but large cube parcels.

Q And what kind of such costs might be related to cube?

A Well, for example, in a plant or a BMC, mail handlers might be transporting parcels on different kinds of rolling equipment. If you take a given piece of equipment, the number of parcels that it can hold will be inversely proportional to the cube of those particular parcels. Therefore, large cube parcels would require a greater number of trips for a given number of parcels than small cubed parcels.

Q Ms. Dreifuss asked you some questions earlier about machinability or limits of the size of parcels, particularly those under a pound, with respect to machinability. Do you know if there are any such limits?

A I am informed that pieces below six ounces are deemed nonmachineable. And in certain cases, pieces below eight ounces may also be considered nonmachineable.

Q And do you know whether such lightweight pieces can go on parcel sorters?

A My understanding is that they cannot.

Q But does the Postal Service currently handle small parcels through the BMC system?

A Yes, they do. I mean Standard A parcels travel through the BMC system.

Q You also discussed with Ms. Dreifuss the relationship between the one pound rate for inter-BMC Parcel Post and for Priority with respect to application of the two pound rate to all those Parcel Post pieces. Did you have anything you wanted to add to your answer?

A I would point out that customers mailing at quantities greater than 50 pieces would be able to qualify for drop ship rates, which are considerably below the one pound Priority rate. Therefore, if, for example, a customer has, say, 49 pieces for which they would be paying the single piece inter-BMC rate for one pound pieces, they could

pay for an additional fiftieth piece and thereby qualify for rates that are far below the one pound Priority rate.

MR. REITER: That is all I have, Mr. Chairman.

CHAIRMAN GLEIMAN: Is there any recross? Mr. Wells.

MR. WELLS: Thank you, Mr. Chairman.

RECROSS-EXAMINATION

BY MR. WELLS:

Q Mr. Plunkett, you identified that there were problems with rolling equipment or rolling containers where fewer parcels could be loaded into those because of the weight?

A In the example I was just using it was cube. If you have a container with a fixed amount of cubic feet available, and you have different size parcels to put in it, you will be able to fit more small parcels into that container than you would large parcels. Therefore, if a mail handler has to transport a given number of parcels on multiple trips using a specific kind of container, they would have to make more trips for large parcels of a given number than for small parcels of a given number, which would, therefore, result in greater costs per piece for the large cube parcels relative to the small cube parcels.

Q This is a function of the cube of the parcel?

A In that case, yes.

Q And rather than a straight per pound charge to cover that additional cost, would it be appropriate for the cube and weight relationship, as shown on your Attachment F, to be applied in determining the additional cost to be recovered from those larger size parcels?

A Well, that relationship and the recognition of such costs is the basis for the Postal Service's balloon rate which applies to lightweight -- I'm sorry, large cube parcels above -- large cube parcels below 15 pounds.

Q I am not talking about the balloon rate, I am talking about the parcels from 10 to 40 pounds. The larger weight parcels also have a larger size, do they not?

A In general, that would -- you would expect that to be true.

Q And the cubic container, the cubic capacity of the container is consumed by fewer parcels which have a larger cube?

A I believe that is what I said, yes.

Q And my question is, would it not be appropriate to apply cube weight relationship, as shown in your Attachment F, to allocate the cost of that additional handling cost?

A Well, to the extent that we are imposing a 2 cent per pound non-transportation handling cost, then to the extent that cube and weight are positively correlated, we are picking that up in the existing rate design.

Q But if the additional cost is caused by differences in cube, wouldn't the cube weight relationship be the appropriate measure to apply that additional cost?

A I guess I would have to back up a little bit and maybe add an additional element to what I said. In the example that I gave about moving different sized parcels, using a given container, I guess, my example, I was considering parcels for which the only real difference was that of cube. So, for example, all parcels may weight 10 pounds but have different cube characteristics, such that the only difference between how many you can fit -- or the costs imposed by those parcels, is the cube. In an alternative example, where parcels have different weight -- I mean cube characteristics, but that weight -- cube increases proportionally with that weight, then, in my mind, we are capturing that additional cube already by the imposition of the 2 cents per pounds charge.

Q Well, looking at your Attachment F, in intra-BMC, the cube relationship between a 10 pound parcel and a 40 pound parcel is slightly more than 2 to 1, is that right?

A That is about right.

Q But your 2 cents a pound has a relationship of 4 to 1, is that right

A But that reflects more than just the difference in cube, that reflects the difference in weight and additional

costs caused by that additional weight.

Q But which we have not been able to identify?

A Other than to the extent we discussed earlier.

Q But you have identified differences because of cube?

A Differences in what?

Q Well, the number of parcels that can fit into a container. That is what you described, wasn't it?

A I gave an example of how, for a given container of a specific size, you are thereby constrained as to the number of sizes of parcels of a particular size that you could put into it, but I didn't attempt to quantify the effect that those different cube relationships would have on costs specifically, or how those could be related to handling costs. I am not aware that such things have been studied.

Q If the differences in cube of parcels is 2 to 1, but the difference in weight is 4 to 1, your 2 cents a pound would apply a 4 to 1 relationship rather than a 2 to 1 relationship, wouldn't it?

A Could you repeat that?

Q If the differences in the cube of a 10 pound parcel and a four pound parcel are 2 to 1, but the differences in weight for those two parcels is 4 to 1, when you apply a per pound 2 cents a pound, you are emphasizing

the weight rather than the cube, aren't you?

A Yes.

Q But the cost that you are attempting to cover on the number of parcels that a container can accept is based on the cube of the parcel?

A Only in that very specific, limited example that I gave. For example, if you have two boxes, one containing a beach ball, one containing a medicine ball, they're roughly the same cube, but have very different weight characteristics.

And I would argue, as I did earlier, that if you're standing on a belt if you're on a carrier route, you can handle a lot more beach balls than you can medicine balls, despite the fact that they have identical or approximately identical cubes.

Q You say you can handle more of the lighter-weight ones, even though they're the same cube?

A In the kinds of examples I was giving earlier, I would conclude that to be the case, yes.

Q And if you had a number of parcels, some of which were your beach balls, half of which, and half of which were your other balls which weigh twice as much, how can you get more of the beach balls in than you can of other balls?

A If you're talking about fitting them into a given container, you can't. There, there's no difference.

If you're talking about a carrier who has to carry some number of them over a specific distance, then I would contend that there is a significant difference.

And that is caused strictly by the weight, having nothing to do with the cube.

MR. WELLS: Very well, thank you, Mr. Chairman.

CHAIRMAN GLEIMAN: Any one else?

MS. DREIFUSS: I do have just one more question.

RECROSS EXAMINATION

BY MS. DREIFUSS:

Q I do appreciate the clarification on the machinability of light-weight parcels.

What is the Postal Service's position on these parcels below six ounces in weight, possibly eight ounces in weight, that are non-machineable?

Will they be accepted as Parcel Post or not; do you know?

A Well, they will be accepted, but they will be machineable in the same way that Standard A parcels are accepted now.

Q Do you understand or do you know whether a non-machineable surcharge will be imposed on those light-weight pieces that are not, indeed, machineable?

A There is no non-machineable surcharge planned. My understanding is that while machinability has an effect on

costs in one direction in the case of these parcels, the transportation cost effect is in the opposite direction, such that because they are lighter, they impose lower transportation costs, so that there is sort of an offsetting relationship.

Q Do you know why there is a difference in the ability of the mechanized equipment to be able to handle six ounces and above in some cases, and eight ounces and above in others?

A No, I don't.

Q Do you have a sense of whether some equipment can handle both sizes and others can only handle the eight ounces?

A Those have to do with the physical characteristics of the piece, and I don't know the precise details about that. Those are, I believe, contained in the DMM.

MS. DREIFUSS: Thank you.

CHAIRMAN GLEIMAN: Mr. Reiter?

MR. REITER: No questions, Mr. Chairman.

CHAIRMAN GLEIMAN: That brings us then to the close of your testimony here today, Mr. Plunkett. We appreciate your appearance and your contributions to this record.

We want to thank you, and you're excused.

[Witness Plunkett excused.]

CHAIRMAN GLEIMAN: Mr. Reiter, if you want to call your next witness, when you're ready?

MR. REITER: Yes. Our next witness is Jennifer Eggleston.

CHAIRMAN GLEIMAN: Ms. Eggleston, before you get comfortable, if I could get you to raise your right hand. Whereupon,

JENNIFER L. EGGLESTON,

a witness, was called for examination by the counsel for the United States Postal Service and, having been duly sworn, was examined and testified as follows:

CHAIRMAN GLEIMAN: Please be seated. Counsel?

DIRECT EXAMINATION

BY MR. REITER:

Q Ms. Eggleston, I am handling you two copies of a document entitled "Direct Testimony of Jennifer L. Eggleston on behalf of United States Postal Service," designated USPS-T-26.

Was this testimony prepared by you or under your direction?

A Yes, it was.

Q And if you were to testify here orally today, would your testimony be the same?

A Yes, it would.

MR. REITER: Mr. Chairman, I will hand the two

copies to the reporter and ask that they be accepted into evidence as the direct testimony of Witness Eggleston.

CHAIRMAN GLEIMAN: Is there any objection? Hearing none, I will direct the testimony be received into evidence and as is our practice not transcribed into the record.

[The Direct Testimony and Exhibits of Jennifer L. Eggleston, USPS-T-26, was received into evidence.]

CHAIRMAN GLEIMAN: Mr. Reiter, does this witness have any Category 2 Library References that she might be sponsoring?

MR. REITER: Yes, she does and I will tell you the numbers.

CHAIRMAN GLEIMAN: Certainly.

MR. REITER: And she will correct me if I wrong -- 103, 104, 105 and 171.

CHAIRMAN GLEIMAN: Those four Library References then will be admitted into evidence and not transcribed into the record.

[Library References 103, 104, 105 and 171 were received into evidence.]

CHAIRMAN GLEIMAN: Ms. Eggleston, have you had an

opportunity to examine the packet of designated written cross examination that was made available earlier today?

THE WITNESS: Yes, I did.

CHAIRMAN GLEIMAN: If the questions were asked of you today, would your answers be the same as those you previously provided in writing?

THE WITNESS: Yes, with two exceptions -- two typos.

In CSA/USPS-T26-6, the end of the first paragraph it says "Attachment 4" -- it should say "Attachment T".

In FGFSA/USPS-T26-1, the third sentence I say there's three percent of parcel singulators. That should read six instead of three.

CHAIRMAN GLEIMAN: Have those changes been incorporated into the packet?

MR. REITER: Yes, they have, Mr. Chairman.

CHAIRMAN GLEIMAN: That being the case, counsel, if you would please provide the copies, two copies, to the court reporter. I will direct that the designated written cross examination of Witness Eggleston be received into evidence and transcribed into the record.

[Designation of Written Cross-Examination of Jennifer L. Eggleston was received into evidence and transcribed into the

record.]

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, DC 20268-0001

Postal Rate and Fee Changes, 2000 Docket No. R2000-1

DESIGNATION OF WRITTEN CROSS-EXAMINATION
OF UNITED STATES POSTAL SERVICE
WITNESS JENNIFER L. EGGLESTON
(USPS-T-26)

Party	Interrogatories
Amazon.com, Inc.	AMZ/USPS-T26-1-2 AMZ/USPS-T36-12 redirected to T26
Continuity Shippers Association	CSA/USPS-T26-5-12, 14-34 CSA/USPS-T39-6 redirected to T26 DFC/USPS-T26-1 FGFSA/USPS-T26-4 PSA/USPS-T26-5
Florida Gift Fruit Shippers Association	FGFSA/USPS-T26-1-4 FGFSA/USPS-T36-2-4 redirected to T26
Office of the Consumer Advocate	CSA/USPS-T26-3, 5, 7-12, 14, 16-22, 24, 32-34 OCA/USPS-T26-1-2
Parcel Shippers Association	OCA/USPS-T26-1-2 PSA/USPS-T26-1, 4-7 UPS/USPS-T26-6-8, 10-19, 22-23
United Parcel Service	PSA/USPS-T26-3 UPS/USPS-T26-4, 6-19, 22-24

Respectfully submitted,

Margaret P. Crenshaw

Margaret P. Crenshaw
Secretary

INTERROGATORY RESPONSES OF
UNITED STATES POSTAL SERVICE
WITNESS JENNIFER L. EGGLESTON (T-26)
DESIGNATED AS WRITTEN CROSS-EXAMINATION

Interrogatory:	Designating Parties:
AMZ/USPS-T26-1	Amazon
AMZ/USPS-T26-2	Amazon
AMZ/USPS-T36-12 redirected to T26	Amazon
CSA/USPS-T26-3	OCA
CSA/USPS-T26-5	CSA, OCA
CSA/USPS-T26-6	CSA
CSA/USPS-T26-7	CSA, OCA
CSA/USPS-T26-8	CSA, OCA
CSA/USPS-T26-9	CSA, OCA
CSA/USPS-T26-10	CSA, OCA
CSA/USPS-T26-11	CSA, OCA
CSA/USPS-T26-12	CSA, OCA
CSA/USPS-T26-14	CSA, OCA
CSA/USPS-T26-15	CSA
CSA/USPS-T26-16	CSA, OCA
CSA/USPS-T26-17	CSA, OCA
CSA/USPS-T26-18	CSA, OCA
CSA/USPS-T26-19	CSA, OCA
CSA/USPS-T26-20	CSA, OCA
CSA/USPS-T26-21	CSA, OCA
CSA/USPS-T26-22	CSA, OCA
CSA/USPS-T26-23	CSA
CSA/USPS-T26-24	CSA, OCA
CSA/USPS-T26-25	CSA
CSA/USPS-T26-26	CSA
CSA/USPS-T26-27	CSA
CSA/USPS-T26-28	CSA
CSA/USPS-T26-29	CSA
CSA/USPS-T26-30	CSA
CSA/USPS-T26-31	CSA
CSA/USPS-T26-32	CSA, OCA
CSA/USPS-T26-33	CSA, OCA
CSA/USPS-T26-34	CSA, OCA

CSA/USPS-T39-6 redirected to T26	CSA
DFC/USPS-T26-1	CSA
FGFSA/USPS-T26-1	FGFSA
FGFSA/USPS-T26-2	FGFSA
FGFSA/USPS-T26-3	FGFSA
FGFSA/USPS-T26-4	CSA, FGFSA
FGFSA/USPS-T36-2 redirected to T26	FGFSA
FGFSA/USPS-T36-3 redirected to T26	FGFSA
FGFSA/USPS-T36-4 redirected to T26	FGFSA
OCA/USPS-T26-1	OCA, PSA
OCA/USPS-T26-2	OCA, PSA
PSA/USPS-T26-1	PSA
PSA/USPS-T26-3	UPS
PSA/USPS-T26-4	PSA
PSA/USPS-T26-5	CSA, PSA
PSA/USPS-T26-6	PSA
PSA/USPS-T26-7	PSA
UPS/USPS-T26-4	UPS
UPS/USPS-T26-6	PSA, UPS
UPS/USPS-T26-7	PSA, UPS
UPS/USPS-T26-8	PSA, UPS
UPS/USPS-T26-9	UPS
UPS/USPS-T26-10	PSA, UPS
UPS/USPS-T26-11	PSA, UPS
UPS/USPS-T26-12	PSA, UPS
UPS/USPS-T26-13	PSA, UPS
UPS/USPS-T26-14	PSA, UPS
UPS/USPS-T26-15	PSA, UPS
UPS/USPS-T26-16	PSA, UPS
UPS/USPS-T26-17	PSA, UPS
UPS/USPS-T26-18	PSA, UPS
UPS/USPS-T26-19	PSA, UPS
UPS/USPS-T26-22	PSA, UPS
UPS/USPS-T26-23	PSA, UPS
UPS/USPS-T26-24	UPS

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF AMAZON.COM

AMZ/USPS-T36-1.
Please refer to your testimony at page 28 (1. 17), where you state that it is assumed that DDU Destination Entry parcels will incur water transportation costs. Please explain when DDU Destination Entry parcels receive water transportation.

RESPONSE:

It is my understanding that water transportation costs are often incurred below the level of the delivery unit. Since DDU parcels are entered at the delivery unit, it cannot be assumed that they avoid these costs.

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AMZ/USPS-T26-2.
Please refer to your testimony at page 28, where you state that DDU parcels are assumed to incur certain highway and POV (postal owned vehicle) costs. Please explain how DDU Destination Entry parcels incur highway and POV costs.

RESPONSE:

It is my understanding that intra-city and box route contracts often account for transportation below the level of the delivery unit. Since DDU parcels are entered at the delivery unit, it cannot be assumed that they avoid these costs.

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AMZ/USPS-T36-12.

a. Why does the DDU transportation cost per cubic foot increase from $0.0660 in Docket No. R97-1 (USPS-T-37, Docket No. R97-1, WP I.E., p. II), to $0.0908 in this docket (USPS-T-36, Attachment G, p. 5), an increase of 37.6 percent?

b. Why does the DSCF transportation cost per cubit foot increase from $0.3997 in Docket No. R97-1 (USPS-T-37, Docket No. R97-1, WP I.E., p. 9), to $0.5362 in this docket (USPS-T-36, Attachment G, p. 4), an increase of 34.2 percent?

RESPONSE:

(a)-(b). My testimony allocates total test year Parcel Post transportation costs to the Parcel Post rate categories. As Parcel Post transportation costs increase, the costs allocated to each rate category increase. Since Alaska non-preferential transportation costs were not included in the Parcel Post transportation cost model in Docket No. R97-1, these costs need to be excluded from test year 2001 Parcel Post transportation costs in order to compare them to Docket No. R97-1 costs. Total Parcel Post test year transportation costs in Docket R97-1 (excluding Alaska non-preferential costs) were $225,638. Total Parcel Post test year transportation costs (excluding Alaska non-preferential costs) in this case are $329,016. This is an increase of 46 percent. Therefore, it is not illogical to expect that DDU and DSCF test year transportation costs increased by 37.6 percent and 34.2 percent, respectively.

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CSA/USPS-T26-3. Please confirm that window service acceptance is not permitted for parcels returned under BPRS.

RESPONSE:

Not confirmed.

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CSA/USPS-T26-5. *If you do not confirm in response to* CSA/USPS-T26-4, please describe the activities performed for the Window Acceptance Costs, and the Postal *employee category that performs these activities.*

RESPONSE:

It is my understanding that the activities associated with window acceptance costs for BPRS parcels would include picking up the parcel, looking for the BPRS endorsement, and placing the BPRS parcel into the proper receptacle. In addition, all window transactions have a common time component. It is my understanding that the Postal employee that performs these activities is a window clerk.

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CSA/USPS-T26-6. At Attachment T, Column 6, page 4 of your testimony, you assume that BPRS containers will be 85% full. However, in the mailflow models/cost summary worksheets for Parcel Post Mail Processing at page 4 of your testimony, you state that "For postal paks, pallet boxes, and sacks on an in-house container (IHC), it is assumed that 10 percent of the container is filled with air. This is the same assumption used in Docket No. R97-1. Since parcels tends to be stacked rather than dumped on pallets, the 10 percent air assumption is not used for pallets." Please reconcile the 85% figure from Attachment T with the 90% used for postal paks, pallet boxes and sacks, and 100% full for pallets.

RESPONSE:

The assumptions used in calculating the conversion factors for the BPRS mail processing model are consistent with calculation of the conversion factors in the Special Standard model and the Parcel Post model, except for the calculation of the conversion factor for a pallet box. The reason for the difference is explained in footnote 1, on page 4 of Attachment 4T.

I assume that the "90% used for postal paks, pallet boxes and sacks" you refer to in your question is based on the 10 percent air factor assumption I discuss on page 4 of my testimony. The "10 percent air factor" and the "85 percent full factor" are two separate factors and enter the conversion factor calculation in two separate ways. Column 6, on page 4 of Attachment T (BPRS mail processing model) refers to the average fullness of a container. This is how full a container appears to be. For example, if this number were 50, the top of the highest parcels would be about halfway up the height of the container.

The "air factor" refers to the fact that even if a container *looks* halfway full, for all containers except for pallets, some of that fullness is air. Space between parcels exists

because parcels are dumped or tossed into most containers. Since parcels tend to be stacked on pallets, the air factor for pallets is zero. The air factor enters the calculation of the conversion factors in column 4 on page 4 of Attachment T. The equation is the total cubic feet of the container (column 3) divided by the product of the average cube of a BPRS parcel (column 9) and one plus the air factor. For example, the calculation in column 4 for sacks on an in-house container is as follows: (56.2 / (.084 * 1.1)).

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CSA/USPS-T26-7. Please confirm that Special Standard B mail is used as a proxy for mail processing costs. If you do not confirm, please explain.

RESPONSE:

Not confirmed. The mail processing cost of Special Standard is not used as a proxy for the mail processing cost of BPRS. The BPRS mail processing cost in Attachment T is estimated using a mail processing model that is similar to both the Special Standard mail processing model in Attachment P and the Parcel Post mail processing model in Attachment A. Inputs to this model reflect the characteristics of BPRS. Please see section VII.B.2 of my testimony for a full explanation. Two of the inputs to the BPRS mail processing model are the Special Standard proportional and fixed CRA adjustment factors as proxies for the BPRS proportional and fixed CRA adjustment factors.

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CSA/USPS-T26-8. At page 34 of your testimony, you state that Special Standard parcels are "twice the size and weight of the average BPRS parcel." Please explain how the larger and heavier Special Standard B mail is adjusted in determining the mail processing costs for BPRS.

RESPONSE:

Please see response to CSA/USPS-T26-7. Section VII.B.2 of my testimony explains how inputs to the mail processing model were used to reflect characteristics of BPRS parcels. The average cube of BPRS parcels was specifically addressed in Section VII.B.2.a. The average cube of BPRS parcels is used to calculate conversion factors, the average number of parcels that fit into each type of container. Conversion factors are used to unitize costs of unloading, loading and moving containers. The smaller the parcel, the more parcels that fit in a container, and hence, the smaller the cost per parcel.

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CSA/USPS-T26-9. Please refer to lines 20-23 on page 34 of your testimony, where you state: "However, since Special Standard is on average larger and heavier than BPRS, using the Special Standard CPA adjustment factor has the potential to overestimate the true volume variable unit cost of BPRS mail processing."

a. Please describe why a smaller and lighter piece should require the same CRA adjustment factors as a larger and heavier piece.

b. All things being equal, how much smaller should the CRA adjustment factor for a piece weighing 12.2 ounces and having a cube of .08 cubic feet be than the CRA adjustment factor for a piece weighing 25.8 ounces and have a cube of .15 cubic feet? Please provide all underlying calculations.

RESPONSE:

(a) Since BPRS has such a small volume, it is not tracked separately in the CRA. For this reason it is impossible to calculate CRA adjustment factors that are specific to BPRS. In fact, if BPRS costs were tracked separately and accurately by the CRA, there would no need to model the BPRS mail processing costs. In addition, not using some sort of CRA-adjustment factors in the estimated mail processing costs would severely underestimate costs. Therefore, proxies for the CRA-adjustment factors were needed. Since it is believed that Special Standard contains a majority of small light-weight parcels, and some of these are returns, the Special Standard CRA adjustment factors are the best **proxies** for the BPRS CRA adjustment factors.

(b) Please see response to part a. The statement you quoted from my testimony simply points out that there is a *potential* for my proxy to overstate the mail processing cost estimate. It is not meant to imply that estimated mail processing costs definitely overstate the true mail processing costs. It is also not meant to imply that there is *no potential* for the overall estimated mail processing costs to be either correct or

understated. It is possible that there are characteristics about BPRS that make it even more costly to process than Special Standard. For example, it is possible that BPRS parcels get miskeyed and end up in mail processing loops more often than Special Standard parcels.

Since the CRA adjustment factors for BPRS cannot be calculated, I cannot answer the question as to what they should be and how I would calculate them.

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CSA/USPS-T26-10. Please refer to lines 2-3 on page 32 of your testimony, where you state: "Since BPRS is a relatively new service, most of the assumptions are made in a manner that has more potential to overstate rather than understate costs."

a. Please identify and list all assumptions you made that have more potential to overstate rather than understate costs.

b. For each assumption, please provide the cost difference between using the assumption you would have used if you were trying to obtain the most accurate cost estimate, and using the assumption that you used in your testimony.

RESPONSE:

(a-b) The statement you quote from my testimony simply alludes to the fact that with any model, assumptions have to be made and since BPRS is a new service, assumptions were made in a manner that had a greater potential to overstate rather than understate costs. What needs to be stressed in the word ***potential***. This is not meant to imply that if we knew the true cost of BPRS, it would definitely be lower than the estimated cost presented in my model. If I knew what assumptions would result in an estimate that is equal to the true cost of BPRS, I would have used those assumptions.

There are three places where I explicitly made assumptions that had greater potential to overstate rather than understate costs. The first is using the Special Standard CRA adjustment factor. Please see my response to CSA/USPS-T26-9.

The second and third place where I make assumptions that have the potential to overstate estimated costs is where I assume that 4.7 percent of BPRS mail is intra-BMC and 95.3 percent is inter-BMC. This affects both the mail processing and transportation

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estimated unit costs. Please see pages 26 and 37 of my testimony for an explanation of how these assumptions impact the estimated costs.

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CSA/USPS-T26-11. Please refer to lines 16-20 on page 37 of your testimony, where you state: "The cost of a long distance leg used in the BPRS transportation model is greater than the cost of a long distance leg in the Parcel Post model for every zone, up to zone 5. Since several of the mailers are located in an area that will rarely use zones above zone 5, this assumption should not lead to underestimating costs." Please also refer
to Table VII-I on page 31 of your testimony.

a. Please confirm that the "cost of a long distance leg used in the BPRS transportation model" is $3.26 per cubic foot. If not confirmed, what is it?

b. Please provide all calculations used to develop the "cost of a long distance leg used in the BPRS transportation model" in an electronic spreadsheet. Please also provide citations in the spreadsheet where appropriate.

c. In an electronic spreadsheet, please provide your assumed Test Year cubic feet, cubic-foot miles, and unit cost per cubic foot by zone for inter-BMC BPRS parcels.

d. Do you have actual cubic feet and cubic-foot mile estimates by zone for inter-BMC BPRS parcels for Base Year 1998, FY 1999, or for any portion of these years? If so, please provide them in an electronic spreadsheet in a similar form as provided in your response to part (c).

e. Do you have actual cubic feet and cubic-foot mile estimates by zone for all BPRS parcels for Base Year 1998, FY 1999, or for any portion of these years? If so, please provide them in an electronic spreadsheet in a similar formats provided in your response to part (c).

f. How many of the eight mailers used in your cost study are "located in an area that will rarely use zones above zone 5"?

g. What percent of BPRS parcels were returned to the eight mailers that are "located in an area that will rarely use zones above zone 5"?

RESPONSE:

(a) Confirmed

(b) All of my attachments are available electronically in LR-I-171.

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(c-e). As explained in my testimony in section VII.B.3, Parcel Post transportation cost information is used to estimate the unit transportation cost of BPRS. Only the average cubic feet of BPRS, .08, was used to estimate BPRS transportation costs.

(f.-g) Four of the eight mailers (61 percent of the volume) are located in areas that most likely will have the majority of their returns in zone 5 or less. However, it is possible for all of the mailers to receive returns from an area that is greater than zone 5 (1000 miles).

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CSA/USPS-T26-12. Please refer to lines 14-26 on page 30 of your testimony.

a. Please describe all differences between the cost estimating methods you are using to develop BPRS costs in this case and those used to develop the October 1998 study.

b. Please describe all differences between the data you are using to develop BPRS costs in this case and those used to develop the October 1998 study.

C. Please provide (in electronic form) all data collected for the October 1998 study, all surveys used to collect data for the October 1998 study, and all reports developed using the data collected for the October 1998 study.

RESPONSE:

(a-b) There were no additional data collected for the cost study presented in my testimony in this case. Three types of modifications were made to the original study filed in October 1998.

The first type of modification is a change in wage rates, premium pay factors and piggyback factors to account for changes in price levels from FY 1998 to 2001.

The second type of modification is the change in Postal Service methodology of variabilities and mail processing estimates. My testimony is consistent with Postal Service methodology in this case. For a full discussion of the decision to use new volume variability estimates, please see USPS-T-15.

The third type of modification is revisions made as a result of questions raised in Docket Nos. MC99-4 and C99-4. These changes were already provided to the Commission in those dockets.

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(c) All data collected for the 1998 BPRS cost study is used in the BPRS cost model.

Therefore all data is included electronically in LR-I-171.

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CSA/USPS-T26-14. At Attachment W, page 3 of your testimony, you provide data concerning postage due costs for Mailer 1. That data is divided into two categories of costs: "Costs of Sorting and Postage Due, Complex," and "Costs of Postage Due, Simple." The cost per piece for the "Complex" postage due is lower than the costs per piece for the "Simple" postage due ($0.006 versus $0.018.) Please explain.

RESPONSE:

The estimated postage due unit cost for Mailer 1 was calculated as a weighted average of the cost of the complex postage due method and the cost of the simple postage due method.

The unit cost of the complex postage due method is approximately 15 cents. The "$.006" you refer to in your question is the unit cost of the complex postage due method spread over a month (26.243 days). In other words, it is the unit cost of complex postage due multiplied by proportion of time that method is used (1 / 26.243).

The "$.018" you refer to in your question is the unit cost of the simple postage due method, also spread over a month. Since this postage due method is performed 25.143 days out of the month, it receives more weight, and is a larger component of the total postage due unit cost for Mailer 1.

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CSA/USPS-T26-15. Please calculate separate "sorting costs" and "postage due costs, complex" for mailer 1 (Attachment W, page 3)

RESPONSE:

In order to avoid confusion, I will calculate both the cost per piece for one day and the cost per piece as it is spread over the course of the month.

The average cost per piece of sorting on the complex postage due day is $.094 ((27.97*1.461*3)/1298). Spreading that unit cost over the course of a month results in .0036 (.094/26.243).

The average cost per piece of calculating postage due on the complex postage due day is $.06. ($27.97*1.456*1.785/1298). This is $.0021 spread over the total month.

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CSA/USPS-T26-16. Please confirm that the reference in Attachment T, page 1, Row 3 of your testimony should be to Attachment P, page 2. If you do not confirm, please explain the application of the data on Attachment P, page 4.

RESPONSE:

The reference in Attachment T, page 1, row 3, was meant to read " Attachment P, page 1, row 4." As an alternative it could also read "Attachment P, page 2."

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CSA/USPS-T26-17. Assuming you confirm in response to CSA/USPS-T26-16, please explain how each of the cost pools shown on Attachment P, page 2, relates to the processing of BPRS parcels. Please confirm that any cost pool unrelated to BPRS should be eliminated from the CRA fixed cost adjustment for BPRS.

RESPONSE:

Please see response to CSA/USPS-T26-8 and CSA/USPS-T26-9. The CRA adjustment factors from the Special Standard mail processing model are used as proxies for the CRA adjustment factors in the BPRS mail processing model. Since the majority of Special Standard is small, light-weight parcels, it was determined that both the proportional and fixed CRA adjustment factors should be similar. There is no reason to exclude any part of the proportional or fixed CRA adjustment factor.

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CSA/USPS-T26-18. Please refer to line 19 on page 35 through line 2 on page 36 of your testimony, where you state: "Seven out of the eight BPRS recipients receive returns on a national basis. Rather than incur the costs of collecting Origin-Destination (O-D) specific information for a product still in its infancy, an assumption was used for the intra/inter mix of BPRS. Since there are twenty-one BMCs across the country, it is assumed that BPRS parcels will use the intra-BMC mailstream 1/21 or 4.8 percent of the time." Please also refer to lines 7 through 9 on page 37 of your testimony, where you state: "Even if it were assumed that 100 percent of BPRS parcels use the inter-BMC network, the estimated cost would rise from 42.3 cents to 43.7 cents, a difference of only 1.3 cents. If instead it were assumed that 100 percent of BPRS parcels use the intra-BMC mailstream, the estimated unit cost of transportation would decline to 16.1 cents."

a. What percentage of BPRS parcels in the cost study were returned to the seven BPRS recipients that receive returns on a national basis?

b. Please confirm that the assumption that only 4.8 percent of BPRS volume uses the intra-BMC mailstream is not an accurate assumption for a non-national BPRS recipient. If not confirmed, please explain your logic.

c. Please provide the zone distribution and intra-BMC/inter-BMC split for the non-national BPRS recipient.

d. Please confirm that, according to the BPRS Study, the unit transportation cost for an inter-BMC BPRS parcel is 43.7 cents and the unit transportation cost for an intra-BMC BPRS parcel is 16.1 cents. If not confirmed, please provide the unit transportation costs for inter-BMC BPRS parcels and intra-BMC BPRS parcels.

e. What is the intra-BMC mail processing cost avoidance for BPRS parcels?

f. What percentage of total BPRS volume is returned to national BPRS recipients?

RESPONSE:

(a) During the data collection phase of the BPRS study, 96.5 percent of the BPRS parcels were returned to BPRS recipients that received returns on a "national basis."

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(b) It is assumed that 4.8 percent of all BPRS parcels use the inter-BMC mail stream. This assumption is used because specific origin-destination data were not collected. Without the data, It is impossible to say whether or not this assumption is more or less valid for each individual mailer. In addition, the statement that one mailer does not receive returns on a "national basis" does not mean that the mailer does not receive inter-BMC parcels.

(c) As stated in the above quotation from my testimony, this data were not collected.

(d) Confirmed that the average transportation unit costs of an intra-BMC BPRS parcel and an inter-BMC BPRS parcel are 16.1 cents and 43.7 cents, respectively.

(e) I am assuming that you are asking for the estimated mail processing cost difference between an inter-BMC parcel and an intra-BMC parcel as estimated by the BPRS mail processing model in Attachment T of my testimony. The estimated cost difference is 8.7 cents. This is calculated by taking the modeled costs of both inter-BMC and intra-BMC parcels, applying the CRA-adjustment factors, and subtracting the adjusted intra-BMC costs from the adjusted inter-BMC costs.

(f) During the data collection phase of the BPRS study, 96.5 percent of the BPRS parcels were returned to BPRS recipients that received returns on a "national basis."

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CSA/USPS-T26-19. Please refer to your response to CSA/USPS-T26-11.

a. What percent of BPRS parcels were returned to recipients that are located in an area that will rarely use zones above zone 6?

b. What percent of BPRS parcels were returned to recipients that are located in an area that will rarely use zones above zone 7?

c. What percent of BPRS parcels were returned to recipients that are located in an area that will rarely use zones above zone 8?

RESPONSE:

As stated on page 35 of my testimony, I did not collect origin-destination specific information. My response to CSA/USPS-T26-11 was to elaborate on a statement I made in my testimony. The purpose of the statement in my testimony was to point out that some of the BPRS mailers were located in a fairly central area of the United States and would not tend to use the higher zones.

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CSA/USPS-T26-20. Please refer to your response to CSA/USPS-T26-8, where you state: "The average cube of BPRS parcels is used to calculate conversion factors, the average number of parcels that fit into each type of container."

a. Please confirm that if you had used the average cube of Special Standard parcels to calculate conversion factors (rather than the average cube of BPRS parcels), modeled BPRS mail processing costs would have been higher than those you estimated. If not confirmed, please explain.

b. If you confirmed part (a), how much higher would mail processing costs have been if the Special Standard average cube were used to determine the conversion factors?

c. Please also confirm that it is appropriate to use the BPRS-specific average cube to calculate the BPRS-specific conversion factors. If not confirmed, please explain.

RESPONSE:

(a) Confirmed that changing the input of average cube to a higher number would result in higher estimated mail processing costs.

(b) Using the average cube of Special Standard, which is 0.19, in the BPRS mail processing model results in an estimated mail processing cost of 72.8 cents. This is 15.7 cents higher than the estimated BPRS mail processing cost.

(c) The cube I used in the BPRS mail processing model, the average cube of BPRS, is the appropriate input to the model.

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CSA/USPS-T26-21. Please refer to your Attachment P, page 2 of 14 of your testimony.

a. Please confirm that you have classified 41 mail processing cost pools as fixed.

b. If you do not confirm, how many are fixed?

RESPONSE:

(a) Confirmed.

(b) N/A.

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CSA/USPS-T26-22. Please confirm that you did not model costs for special standard mail in the mail processing cost pools classified as fixed.

RESPONSE:

Confirmed.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION

CSA/USPS-T26-23. For each of the Cost Pools that you classify as fixed, please provide a brief operational description of the activities undertaken for special standard mail in that cost pool.

RESPONSE:

Please see witness Degan's testimony (USPS-T-16) starting on page 36 for a description of the cost pools.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION

CSA/USPS-T26-24. Please explain why there are costs for special standard mail in the BCS cost pool.

RESPONSE:

It is my understanding that occasionally costs show up in cost pools where they are unexpected. It is further my understanding that the reason for this is the following. The IOCS handling tallies record the mail actually being handled by the employees recorded as working a given mail processing operation (cost pool), rather than the mail expected to be handled in a given operation. To the extent certain shape identification criteria overlap, it will be possible to process some mailpieces in multiple shape-related mailstreams, and particularly in manual operations.

In addition, it is my understanding that further confusion can result from the fact that there is not a one to one relationship between IOCS activities and MODs cost pools. IOCS tallies at MODS 1&2 facilities are associated with cost pools based upon the sampled employee's clocked-in operation (recorded in IOCS question 18A). IOCS operation codes are based upon an independent classification of the sampled employee's observed activity at the time the tally is taken (recorded in the other subparts of IOCS question 18). There is not a one-to-one correspondence between MODS cost pools and the activities in the other parts of IOCS question 18 -- in general, a MODS cost pool will consist of multiple question 18 activities, and likewise a given question 18 activity may appear in multiple cost pools. For instance, employees working MODS sorting operations may need to incidentally perform certain allied labor

activities; a tally of such an activity would correctly identify the MODS sorting operation in question 18A and the allied labor activity in the remainder of question 18.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION

CSA/USPS-T26-25. Please explain why there are costs for special standard mail in the MODS registry cost pool.

RESPONSE:

Please see response to CSA/USPS-T26-24.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION

CSA/USPS-T26-26. Please explain why there are costs for special standard mail in the non-MODS registry cost pool.

RESPONSE:

Please see response to CSA/USPS-T26-24.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION

CSA/USPS-T26-27. Please explain why there is cost for special standard mail in the SPBS priority cost pool.

RESPONSE:

Please see response to CSA/USPS-T26-24.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION

CSA/USPS-T26-28. Please explain why there is cost for special standard mail in the FSM cost pool.

RESPONSE:

Please see response to CSA/USPS-T26-24.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION

CSA/USPS-T26-29. Please explain why there is cost for special standard mail in the business reply cost pool.

RESPONSE:

Please see response to CSA/USPS-T26-24.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION

CSA/USPS-T26-30. Please explain why there is cost for special standard mail in the express priority cost pool.

RESPONSE:

Please see response to CSA/USPS-T26-24.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION

CSA/USPS-T26-31. Please explain why there are costs for special standard mail in the preferential opening unit.

RESPONSE:

Please see response to CSA/USPS-T26-24.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION

CSA/USPS-T26-32. Does your BPRS mail processing cost model reflect any costs for non-machineable parcels?

RESPONSE:

The BPRS mail processing model does not directly include any costs for non-machinability. Since the Special Standard CRA adjustment factors are used for proxies, and 17 percent of Special Standard is assumed to be non-machinable, some costs of non-machinibility may be indirectly included in the model. However, these "costs of non-machinability" can be thought of as proxies for other costs. Although BPRS parcels are machinable by definition, it is possible that BPRS could have other factors that make it more costly than Special Standard. For example, it may be possible that BPRS parcels get miskeyed more often than Special Standard and end up in loops more often. In addition, since BPRS is a return service, it is possible that BPRS parcels come open and have to be rewrapped more often than Special Standard parcels.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION

CSA/USPS-T26-33. Please confirm that the only window acceptance activities performed under the Merchandise Return Service is picking up the parcel, looking for the merchandise return service permit and placing the parcel in the proper receptacle.

a. If you do not confirm, please state what other activities are performed.

b. Please confirm that these window acceptance activities are performed by a window clerk.

RESPONSE:

(a) Not confirmed. All window activities have a "common time component." Part of this "common time component" is waiting for the customer to arrive at the window and greeting the customer.

(b) Confirmed.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION

CSA/USPS-T26-34. For Mailer #1, the postage due costs shown in Attachment W, page 3 shows $0.018 cost per piece of simple postage due. However, the BPRS cost study issued in October 1998 shows $0.0058 cost per piece of simple postage due for Mailer #1. Please reconcile the two numbers.

RESPONSE:

There have been several revisions to the original BPRS cost study. Each revision was done to incorporate improved data. In addition, the two costs, $.018 and $.0058 cannot be directly compared because they are both the cost of simple postage due allocated to all days postage due is calculated.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF CONTINUITY SHIPPERS ASSOCIATION REDIRECTED FROM WITNESS MAYO

CSA/USPS-T39-6. Please confirm that the machinability requirement for BPRS parcels reduces the costs of processing BPRS parcels. If you do not confirm, please explain.

RESPONSE:

Confirmed that, holding all else equal, machinable parcels are less costly to handle than nonmachinable parcels.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES FROM DOUGLAS F. CARLSON

DFC/USPS-T26-1. At page 32 of your testimony, you explained that you used the collection costs of single-piece Standard Mail (A) as a proxy for the collection costs of BPRS mail. Please provide a complete and thorough explanation of your understanding of the collection process, including all steps in the collection process, for Standard Mail (A). In your answer, please explain all typical situations, including Standard Mail (A) deposited in collection boxes, Standard Mail (A) given to a letter carrier, and Standard Mail (A) tendered at a retail window.

RESPONSE:

As stated in my testimony on page 32, lines 11-17, Standard (A) mail collection costs are used as a proxy for BPRS costs because a good portion of the parcels that eventually migrated to BPRS were still in the single-piece Standard Mail (A) mailstream in the base year. It is my understanding that single-piece Standard (A) could enter the mailstream via being dropped into a collection box, left for the carrier, or taken over the window. These options are also available for BPRS. Since there was no reason to believe that the collection activities differed between single-piece Standard Mail (A) and BPRS, I did not identify or study every activity involved with collection. Although the collection costs for single-piece Standard Mail (A) might not be identical to BPRS, in the absence of BPRS-specific collection costs, single-piece Standard Mail (A) costs are the best proxy.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF FLORIDA GIFT FRUIT SHIPPERS ASSOCIATION

FGFSA/USPS-T-26-1. Refer to Attachment P. In the determination of the cost summaries for machinable parcels, how is the cost of the computerized sorting and handling equipment, as well as the cost of the computer programmers, technical support personnel and operators, reflected?

RESPONSE:

I am assuming that you are asking about the inclusion of the Singulate, Scan, Induction Units (SSIUs) that are also commonly referred to as parcel singulators. In the mail procesing models in my testimony, it is assumed that 6 percent of SSIUs will be installed by the test year. SSIUs are included in the model by adjusting the number of handlings for the proportion of time that a parcel will be "handled" by a SSIU. In other words, the probability that a parcel will be handled on the secondary PSM only includes the proportion of parcels that will be handled by a person. These probabilities are on shown in reference 12 on page 5 of Attachment P.

It is my understanding that indirect costs, such as the cost of computer programmers, technical support and operators are included in the PSM piggyback factor.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF FLORIDA GIFT FRUIT SHIPPERS ASSOCIATION

FGFSA/USPS-T-26-2. Refer to your Attachment N. Transportation cost for Intra-BMC is the same for each zone. Explain how the transportation costs do not increase from zone to zone.

RESPONSE:

As explained in section V2 of my testimony, Parcel Post transportation costs are divided into zone related and non-zone related costs. Essentially, costs are considered to be zone related when the distance a parcel actually travels is directly related to zone. Costs are considered to be non-zone related, when the distance a parcel travels is *not* directly related to zone. Please note that this is not the same as saying that non-zone related costs do not increase as the actual distance traveled increases. It is saying that non-zone related costs do not necessarily increase as zone increases, since distance traveled does not necessarily increase as zone increases.

As can been seen in Table V-1 on page 19 of my testimony, both the local and intermediate costs of intra-BMC are characterized as being non-zone related. Therefore, costs are not directly related to zone. Therefore on average, the cost per cubic feet is the same for each zone.

For a more detailed explanation of zone and non-zone related costs see Docket No. R97-1, USPS-T-16, Section IIB. Please note in R97-1 these costs were referred to as distance and non-distance related costs.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF FLORIDA GIFT FRUIT SHIPPERS ASSOCIATION

FGFSA/USPS-T-26-3. If two identical parcels – one rated Intra-BMC and the other rated DBMC – are transported from the same BMC to the same SCF, on the same vehicle,

a. explain how the transportation cost for each parcel can be different.
b. Since the Intra-BMC parcel also received transportation from the originating SCF to the BMC, explain how the transportation cost for the Intra-BMC parcel can be less than that for the DBMC parcel.

RESPONSE:

a. It is *possible* that three individual parcels, travelling from the same BMC to the same SCF could incur the same costs. The results of my transportation cost model should not be interpreted as saying one specific leg of transportation will have different costs for the different rate categories. The purpose of my transportation model is to estimate the average cost per cubic foot for each Parcel Post rate category. The Parcel Post transportation model cannot be used to estimate the cost of a specific leg of transportation from one BMC to one plant or even used to estimate the cost of an individual parcel.

(b) Please see response to a.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF FLORIDA GIFT FRUIT SHIPPERS ASSOCIATION

FGFSA/USPS-T-26-4. Refer to your Attachment P, pages 10 and 11 for the Intra-BMC model. A comparison of the Wtd Modeled Cost shows that the cost for machinable parcels is 0.0985 and for nonmachinable is 0.0340. Does this show that the cost for a nonmachinable is less than that of a machinable parcel? If not, please explain.

RESPONSE:

No. The "Wtd Modeled Cost" is the modeled costs times a weighting factor. The weighting factors are also referred to as volume percentages and are calculated on page 6 of Attachment P. The purpose of the "Wtd Modeled Cost" is to calculate the "Weighted Average Model Cost" on row 1, page 1, of Attachment P. This is used to compute the CRA proportional adjustment factor.

To compare the modeled cost of machinable and nonmachinable parcels, the "Model Cost" of each model should be compared. These are displayed directly above "Model Weight" on the mailflow/cost summary pages. The modeled unit cost of a machinable Special Standard parcel is 36.13 cents. The modeled unit cost of a nonmachinable Special Standard parcel is 83.4 cents. Therefore, the modeled cost of nonmachinable Special Standard parcels is 47.3 cents higher than the modeled cost of a machinable Special Standard parcel. It should be noted that if I were asked to compare the estimated costs of machinable and nonmachinable parcels, I would compare the estimated volume variable unit costs. This would be the modeled costs, times the proportional CRA-adjustment factor of 1.04 plus the fixed CRA adjustment factor of .211. Therefore the estimated cost difference between a machinable and nonmachinable parcel is 49.2 cents.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF FLORIDA GIFT FRUIT SHIPPERS ASSOCIATION REDIRECTED FROM WITNESS PLUNKETT

FGFSA/USPS-T36-2. Refer to your Attachment G. Transportation cost per piece for intra-BMC is the same amount for all zones for each weight increment, but for DBMC the transportation cost per piece increases in each zone. Fully explain how the transportation costs does not increase from zone to zone.

RESPONSE:

Please see response to FGFSA/USPS-T26-2.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF FLORIDA GIFT FRUIT SHIPPERS ASSOCIATION REDIRECTED FROM WITNESS PLUNKETT

FGFSA/USPS-T36-3. Are Intra-BMC and DBMC parcels combined together at the destination BMC and transported to the postal facilities served by that BMC in the same vehicles? If not, please explain.

RESPONSE:

A DBMC parcel and an Intra-BMC parcel handled at the same BMC and travelling to the same SCF may or may not travel on the same vehicle. It is my understanding that one of the reasons they may be on different vehicles is that there may be several vehicles leaving for the same facility a day. However, if by "combined" you meant that both parcels are sorted into the same container, then obviously both parcels would travel on the same vehicle.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF FLORIDA GIFT FRUIT SHIPPERS ASSOCIATION REDIRECTED FROM WITNESS PLUNKETT

FGFSA/USPS-T36-4. If two identical parcels - one rated Intra-BMC and the other rated DBMC - are transported from the same BMC to the same SCF, on the same vehicle, explain how the transportation cost for each parcel can be different.

RESPONSE:

Please see my response to FGFSA/USPS-T26-3.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

OCA/USPS-T26-1. A review of your testimony at pages 5 (bottom) and 6 suggests that the amount of the worksharing savings that you calculate is enlarged, to some extent, by your inclusion of costs that are "not worksharing-related" (page 6, line 4).

(a) Is that interpretation correct? If not, please state your position with respect to nonworksharing fixed costs. If OCA's understanding is correct, then state your rationale for including nonworksharing fixed costs in a calculation of the cost savings resulting from worksharing.

(b) Also explain whether your position is consistent with the Commission's opinion in Docket No. MC95-1 that inclusion of "cost differences unrelated to presorting and prebarcoding . . . are inconsistent with the Postal Service's, as well as the Commission's, intent that these workshare category differentials send accurate signals to potential producers of the costs that the Postal Service avoids as a result of worksharing."

RESPONSE:

a. The interpretation is not correct. Although, the fixed CRA adjustment factor is included in the estimated adjusted costs, it has no impact on the estimated worksharing cost savings. This is because the same fixed CRA adjustment factor is applied to each cost estimate. In other words, not including the fixed CRA adjustment factor in the adjusted costs would result in the same estimated worksharing cost savings as calculated in my testimony. The fixed CRA adjustment factor was included in the adjusted cost estimates to be consistent with how the data was presented in Docket No.R97-1, USPS-T-29.

b. Please see response to OCA/USPS-T26-1. Since the fixed CRA adjustment factor has no impact on estimated cost savings, my methodology is consistent with the PRC's position.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

OCA/USPS-T26-2. In the instant proceeding, the Postal Service appears to present an analysis of mail processing costs that leads the Service to conclude that the costs of some mail processing activities vary less than 100 percent with volume. In some cases, these proposed mail processing cost volume variabilities are significantly less than 100 percent. For the purpose of developing cost differentials for Parcel Post worksharing and dropship discounts, for the Parcel Post nonmachinable surcharge and oversize rates, and for Special Standard discounts, does your analysis reflect the differing and wide-ranging volume variabilities for different cost pools? If not, why not? (Explain fully.) If so, explain how your analysis takes these wide-ranging volume variabilities into account.

RESPONSE:

All of the cost estimates in my testimony use the variabilities presented by witness Van-Ty-Smith in USPS-T-17, Table 1. These variabilities are used in my model to calculate marginal productivities. This is done by dividing each average productivity by its corresponding variability. Since the productivities vary by cost pool, and each productivity is divided by its corresponding variability, the model easily incorporates the "wide-ranging" variabilities.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF THE PARCEL SHIPPERS ASSOCIATION

PSA/USPS-T26-1

Please refer to lines 18-24 on page 11 of your testimony, where you state: "As a result, it was necessary to make several assumptions in estimating the cost savings associated with these new rates and discounts. Since the rate categories and discounts are not fully examined the assumptions used in this cost study were made in a manner to mitigate the possibility of overstating cost savings. For this reason, the CRA adjustment factor discussed in Section III.8 of this testimony is not applied to the cost saving estimates in this section."

a. Please confirm that the "new rates and discounts" referred to in the above citation include the DBMC, DSCF, and DDU rates.

b. Please identify and list by rate category all assumptions " used in this cost study [that] were made in a manner to mitigate the possibility of overstating cost savings."

c. For each assumption, please provide the assumption you would have used if you were trying to obtain the most accurate cost estimate, rather than trying to "mitigate the possibility of overstating cost savings."

d. For each assumption, please provide the cost difference between using the most accurate assumption described in part (c) and using the assumption that you used in your testimony.

e. Did you make any assumptions with the intent of mitigating the possibility of understating cost savings? If so, please identify, list, and describe them.

f. Did you make any assumptions that you believe will have the impact of understating cost savings? If so, please identify, list, and describe them.

g. Please define "fully examined" as used in the above reference.

h. Please explain why the Postal Service generally applies CRA adjustment factors to modeled costs when determining cost differences between rate categories.

i. Please identify and list all other witnesses that model mail processing costs for the purpose of rate design, but do not apply CRA adjustment factors. For each of these witnesses, explain why they did not apply CRA adjustment factors to modeled costs.

k. Please provide Parcel Post CRA-adjusted DBMC, DSCF, and DDU non-transportation cost savings.

l. Please confirm that the proportional CRA adjustment factor for the Parcel Post subclass is 1.154. If not confirmed, what is it?

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF THE PARCEL SHIPPERS ASSOCIATION

RESPONSE:

(a) Not Confirmed. The statement was meant to refer to the DSCF and DDU rate categories. It also holds true for the estimation of the BMC presort cost savings. Since DBMC cost savings are estimated using actual data, it is not appropriate to apply a CRA-adjustment factor.

(b) The main assumption I was referring to with this statement was the fact that I did not use a CRA-adjustment factor in the estimation of DSCF, DDU and BMC-presort cost savings. The other assumption this refers to is the calculation of the average number of parcels on a DSCF pallet. There are several requirement options for mailers to enter DSCF parcels. In order to calculate the weighted average, I weighted the minimum number of parcels on a pallet for each requirement by 0.7 and the maximum number of parcels on a pallet for each requirement by 0.3. Since I am weighting the minimum number with a greater weight, there is a larger potential for the average to be understated rather than overstated.

(c)-(f) The cost models presented in my testimony provide my best estimate of cost savings. Since cost models are used when detailed or de-averaged cost information is not available, it is necessary to make assumptions in their design. In making assumptions, the choice is not between "the most accurate cost estimate" and mitigating the possibility of overstating costs. Instead, where actual data are not available, there may be a range of choices between those that are likely to overstate and those that are likely to understate estimates. The conservative approach is to make

the best judgment, but err on the side of understating cost savings, especially for relatively new discounts. In the absence of detailed or de-averaged cost information, it is not possible to determine the impact of every assumption. It is still possible that , even if I thought I was erring on the side of caution, some of my assumptions could end up overstating true cost savings.

(g) At the time I developed my models several of the rate categories and discounts had been in place for less than one year. It often takes several months or years for mailers to begin to fully utilize new rate categories. Therefore, not only was there little time to collect data, there was also little data to collect. This situation is what I was referring to when I said the rate categories and discounts were not "fully examined."

(h) It is my understanding that the Postal Service began the use of CRA adjustment factors in Docket No. MC95-1. CRA adjustment factors are used to tie mailflow modeled costs to the actual costs presented in the CRA. The proportional CRA adjustment factor is used to tie modeled costs to the CRA to adjust for variances in the inputs. The fixed CRA adjustment factor is used to tie unmodeled costs to the CRA. It is my understanding that it is only appropriate to use CRA adjustment factors when dealing with well-established categories or well-established operations.

(i) Since CRA adjustment factors are only used with mail processing mailflow models, I will only discuss which witnesses used mail processing mail flow models and did not apply CRA adjustment factors. Witness Crum (USPS-T-27) is the only other witness that does not apply CRA adjustment factors. He does not apply the CRA adjustment

factor to the estimated Bound Printed Matter dropship cost savings because they are new dropship rate categories.

(k) Since DBMC cost savings are estimated using actual cost data, it is not appropriate to apply a CRA adjustment factor. Since I did not plan to apply a CRA adjustment factor to DSCF and DDU cost savings estimates, I had no reason to determine what CRA adjustment factor to apply to DSCF and DDU. Therefore, I cannot calculate an adjusted cost savings estimate for DSCF or DDU.

(l) Confirmed that the appropriate proportional CRA-adjustment factor for the Parcel Post models in Attachment A is 1.154.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF THE PARCEL SHIPPERS ASSOCIATION

PSA/USPS-T26-3

Please refer to lines 20-25 on page 13 of your testimony, where you state: "The second issue raised in Docket No. R97-1 was that it is not appropriate to assume that DBMC parcels avoid platform acceptance costs at other facilities. Even though DBMC parcels will actually avoid these costs at the upstream facilities, they may incur similar costs at the BMC. This is because parcels that are entered at the delivery unit or plant will instead arrive at the BMC in postal paks. In contrast, the majority of DBMC mail is bedloaded. Therefore, DBMC parcels may incur platform acceptance costs at the BMC that are similar to the costs other parcels incur when they are entered upstream from the BMC."

a. What percentage of DBMC mail is bedloaded?

b. Will DBMC mail that is not bedloaded "avoid platform acceptance costs"? If no, please explain why not.

RESPONSE:

(a) The estimated percentage of bedloaded DBMC mail that is used in my models is 96.2 percent.

(b) Non-bedloaded DBMC parcels may still incur some costs that are similar to "platform acceptance costs at facilities upstream of the BMC." However, if a mailer loads DBMC parcels into a truck similarly to how the Postal Service loads a truck, the DBMC parcels should avoid what I refer to as "platform acceptance costs".

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORY OF THE PARCEL SHIPPERS ASSOCIATION

PSA/USPS-T26-4

1. Please refer to page 377 of LR-I-105.

(a) Please confirm that the average cubic feet per piece for an oversized parcel is 10.84 and that this figure can be calculated by dividing the column total for "Total Oversized Cubic Feet" by the column total for "Oversized Volume." If not confirmed, what is the average cubic feet per oversized parcel?

(b) Please confirm that the data on page 377 were developed using RPW data for FY 1999, PQ 3. If not confirmed, please provide the source of the data.

(c) Please provide the coefficient of variation for each figure in the "Oversized Volume" column and in the "Total Oversized Cubic Feet" column of the table on page 377.

(d) For each figure in the "Total Oversized Cubic Feet" column, please identify the size of sample that underlies it.

(e) Please confirm that the figures on this page were developed using only data for Parcel Post oversized parcels. *If not confirmed, please explain.*

(f) Does the Postal Service's RPW system collect data on the cubic feet of individual pieces or were the total oversized cubic feet figures developed using conversion factors?

(i) If the Postal Service's RPW system does collect data on the cubic feet of pieces, please provide a description of how the Postal Service collects these data and for what types of mail the Postal Service collects these data.

(ii) If the Postal Service's RPW system doesn't collect data on the cubic feet of mail pieces, please provide a description of how the Postal Service calculated the "Total Oversized Cubic Feet" figures on page 377.

(g) Please provide citations to all places in your testimony and attachments where you reference the 10.84 cubic feet per piece for an oversized parcel.

RESPONSE:

(a) An error was found in the data file. The average cube of an oversize parcel in PQ3, FY99 is 8.04. Errata is being filed to both LR-I-105 and USPS-T-26.

(b) Confirmed.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORY OF THE PARCEL SHIPPERS ASSOCIATION

(c & d) The following table summarizes the coefficient of variations and sample size.

	Coefficient of Variation		
	Total Oversized Volume	Total Oversized Cubic Feet	Sample Size
DBMC	44.30 %	54.50 %	47
Inter-BMC	70.68 %	52.84 %	12
Intra-BMC	47.99 %	70.54 %	5

(e) Confirmed

(f) The Postal Service's RPW system collects data on the cubic feet of individual parcels for only Parcel Post parcels.

(i) This information is provided on pages 3-113 to 3-264 of USPS LR-I-37, Handbook F-75.

(ii). N/A.

(g) The only citation for the average cube of oversize parcels in my testimony is Attachment A, page 6, column 15. The impact of changing the average cube will flow through all oversize mailflow models in my testimony. Errata is being filed.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORY OF THE PARCEL SHIPPERS ASSOCIATION

PSA/USPS-T26-5

Please refer to lines 12-14 on page 8 of your testimony, where you state, "The cost difference between an inter-BMC machinable parcel and an intra-BMC machinable parcel is calculated in Table 3 on the same page. The estimated cost difference is 32.8 cents." Further, please refer to lines 24-27 on page 16 of your testimony, where you state, "The estimated cost savings for a DSCF parcel is calculated separately for a NMO and a machinable parcel. Then the proportion of machinable and the proportion of NMO parcels are used to calculate a weighted average of the cost savings." Finally, please refer to page 1 of Attachment A to your testimony and page 1 of Attachment H of USPS-T-36.

(a) Please confirm that the Inter-BMC NMO mail processing unit cost is $3.489 and that the Intra-BMC NMO mail processing unit cost is $2.544. If not confirmed, please provide the correct unit cost figures.

(b) Please confirm that the intra-BMC NMO cost difference is 94.5 cents. If not confirmed, please provide the correct cost difference figure.

(c) Please confirm that 7.986 percent of intra-BMC parcels are NMOs. If not confirmed, please provide the correct percentage.

(d) Please confirm that using "the proportion of machinable and the proportion of NMO parcels...to calculate a weighted average of the cost savings" results in an intra-BMC cost difference of 37.7 cents. If not confirmed, please provide the correct cost difference figure.

RESPONSE:

(a) Confirmed that the adjusted mail processing costs estimated by the Parcel Post mailflow models in Attachment A are $3.489 for inter-BMC NMOs and $2.544 for intra-BMC NMOs.

(b) What I refer to in my testimony as the intra-BMC NMO cost difference is the cost difference between the estimated cost of an intra-BMC NMO and the estimated cost of an intra-BMC machinable parcel. As shown on page 1 of Attachment A, this cost difference is $1.173. However, if what you are referring to in your question is the cost

difference between an inter-BMC NMO and an intra-BMC NMO, then confirmed that the estimated cost difference is 94.5 cents.

(c) In the models in Attachment A of my testimony it is assumed that 8.0 percent of intra-BMC parcels are NMOs. Confirmed that 7.986 would round to 8 percent.

(d) I assume you are asking me to calculate the average cost savings of an intra-BMC parcel compared to an inter-BMC parcel. It should be noted that to the best of my knowledge this input is not needed for rate making purposes. However, I will confirm that by using the proportion of machinable and the proportion of NMOs it is possible to calculate an average cost savings of intra-BMC parcels compared to inter-BMC parcels of 37.7 cents.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF THE PARCEL SHIPPERS ASSOCIATION

PSA/USPS-T26-6. Please refer to your answer to PSA/USPS-T26-4. Please further refer to USPS-T-5, Table 1, footnotes 4 and 6. Finally, please refer to page 377 of LR-I-105.

a. Please confirm that the lower limit of the 95 percent confidence interval for an estimated number can be calculated by subtracting the quantity (1.97 x standard error) from the estimated number.
b. Please confirm that the upper limit of the 95 percent confidence interval for an estimated number can be calculated by adding the quantity (1.97 x standard error) to the estimated number.
c. Please confirm that a coefficient of variation of 50 percent implies that the lower limit of the 95 percent confidence interval is near zero.
d. Please confirm that a coefficient of variation of 50 percent implies that the upper limit of the 95 percent confidence interval is almost twice the estimated number.
e. In the case of the Oversized Volume for the DBMC rate category, where the estimate is 61,808 and the coefficient of variation is 44.30 percent, please confirm that the 95 percent confidence interval ranges from 7,888 to 115,748. If not confirmed, please provide the appropriate figures.
f. Please confirm that if the true value of the Oversized Volume for the DBMC rate category is in the 95 percent confidence interval described in (e) that it could have any value in the range from 7,888 to 115,748.
g. Please provide the coefficient of variation for the calculated Average Oversized Cubic Feet column for each rate category.
h. Please provide the coefficient of variation for the totals in the Oversized Volume column and the Total Oversized Cubic Feet column.
i. Please provide the coefficient of variation and 95 percent confidence interval for the total Average Oversized Cubic Feet across all three rate categories shown on page 377 of LR-1-105.
j. Please confirm that if the true value of the total Average Oversized Cubic Feet is in the 95 percent confidence interval described in (i) that it could have any value in the range specified in (i).

RESPONSE:

Although the oversize cube was calculated using a small sample size, it is still the best estimate available. It should be noted that in Docket No. R97-1, a regression analysis was used to estimate the average cube, and the result was 8.19. Since this estimate is close to the "corrected" estimate of oversize cube in the current case, there is no reason to believe the current estimate is unreasonable. In addition, by definition, the oversize parcels with the smallest amount of cube are long, thin parcels. These

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF THE PARCEL SHIPPERS ASSOCIATION

parcels are difficult to handle, are more likely to be fragile, and may have to be bedloaded instead of combined with other parcels in a container. In these cases, cube is not a good indicator of the incurred cost. Therefore, to the extent that the unknown "true" average cube of oversize parcels is below 8.04, the costs associated with the 8.04 cube could be considered a proxy for additional "handling" costs associated with long, thin parcels.

(a) Confirmed.

(b) Confirmed

(c) Confirmed

(d) Confirmed

(e) Confirmed

(f) The "true value" is fixed. There is a 95 percent chance that it is included in the range 7,888 to 115,748.

(g) The coefficient of variations for the calculated Average Oversized Cubic Feet column are the following:

Intra-BMC: 7.30

Inter-BMC: 10.1

DBMC: 12.1

(h) The coefficient of variation for total oversize volume is 37.20. The coefficient of variation for total oversized cube feet is 45.00.

(i) The average oversized cubic feet over all rate categories is 8.04. The coefficient of variation is 9.4 and the 95 percent confidence interval is (6.55, 9.53).

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF THE PARCEL SHIPPERS ASSOCIATION

(j) The "true value" of the total average oversized cubic feet is fixed. There is a 95 percent chance that it is included in the interval (6.55, 9.53).

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON TO INTERROGATORIES OF THE PARCEL SHIPPERS ASSOCIATION

PSA/USPS-T26-7. Please refer to your answer to PSA/USPS-T26-4a. Please further refer to Table 2 at page 1 of Attachment A of the Errata filed to USPS-T-26.

a. Please confirm that the average cost for oversized parcels dropped 20-25 percent, as a result of the Errata filed to USPS-T-26 for page 1 of Attachment A, which reduced the average cube of an oversized parcel from 10.84 to 8.04. If not confirmed, please explain.
b. Please provide the average cost for oversized parcels that would result if the true average cube of an oversized parcel were 5.00 instead of 8.04.

RESPONSE:

a. Confirmed.

b. The purpose of my mail processing models is to supply cost differences. Changing the input "cube of oversize parcels" to 5 would result in the following mail processing cost differences:

Inter-BMC: $ 5.123

Intra-BMC: $3.450

DBMC: $2.804

RESPONSE OF UP
TO IP

UPS/USPS-
your testimony
state in each suc
1998.

RESPONSE:

BY 1998 data were used w

there were reasons why FY 19

of all the instances where my testin

why I used FY 1999 data instead of BY

FY 1999 data are used in Attachment A, page 6,
average cube of Parcel Post oversize parcels, rely c
377 of LR-I-105 (FY 1999 Postal Quarter 3, total cube,
Parcel Post oversize parcels). Since the Postal Service did
with a length plus girth over 108 inches until January 10, 1999,
data for oversize parcels did not exist in FY 1998. Therefore, it was
use FY 1999 data.

Attachment Y, page 1 also uses FY 1999 data. These data were collected by BMC Operations during FY 1999. These data are used in the Parcel Post (Attachment A, page 5, references 6, 7, and 16) and Special Standard (Attachment P, page 5, references 6, 7, and 13) mail processing models. There is no reason to believe that FY 1998 data would be significantly different.

Attachment Y, page 2 uses FY 1999 data. These data were collected from ASFs during FY 1999. These data are used to estimate DBMC mail processing cost savings on page 2 of Attachment F, row 3. There is no reason to believe that FY 1998 data would be significantly different.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORY OF UNITED PARCEL SERVICE

UPS/USPS-T26-6. Refer to USPS-T-26, Attachment A, pages 10, 11, 13, and 14.

(a) Confirm that the machinable non-presort intra-BMC modeled costs on page 10 are $0.9218 per piece. If not confirmed, explain in detail.

(b) Confirm that the machinable DBMC modeled costs on page 13 are $0.6731 per piece. If not confirmed, explain in detail.

(c) Confirm that the difference in modeled costs between machinable intra-BMC ($0.9218) and machinable DBMC ($0.6731) are $0.2487 per piece. If not confirmed, explain in detail.

(d) Confirm that the non-machinable non-presort intra-BMC modeled costs on page 11 are $1.9385 per piece. If not confirmed explain in detail.

(e) Confirm that the non-machinable DBMC modeled costs on page 14 are $1.7799 per piece. If not confirmed, explain in detail.

(f) Confirm that the difference in modeled costs between non-machinable intra-BMC ($1.9385) and non-machinable DBMC ($1.7799) are $0.1586 per piece. If not confirmed, explain in detail.

(g) Reconcile in detail the difference between the mail processing modeled cost savings for DBMC of $0.593 per piece summarized on USPS-T-26, Attachment C, and the $0.2487 per piece (see (c) above) and $0.1586 per piece (see (f) above) derived above using USPS-T-26, Attachment A.

(h) Explain in detail all mail processing activities performed at origin Associate Offices with respect to Parcel Post mail.

(i) Explain in detail all mail processing activities performed at origin SCFs with respect to Parcel Post mail prior to the unloading of containers.

RESPONSE:

(a) Confirmed.

(b) Confirmed.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORY OF UNITED PARCEL SERVICE

(c) Confirmed that the cost difference between the intra-BMC machinable parcel model and DBMC machinable parcel model shown in Attachment A is $.2487.

(d) Confirmed.

(e) Confirmed.

(f) Confirmed that the cost difference between the intra-BMC non-machinable parcel model and the DBMC non-machinable parcel model shown in Attachment A is $.1586.

(g) The mail processing cost models in Attachment A were not developed for the purpose of estimating DBMC cost savings. For these models to be used to estimate DBMC cost savings, the operations at the origin associate office would have to be added to the intra-BMC and inter-BMC models. Information about the mail processing operations at origin associate offices are not currently available.

In addition, to use the models in Attachment A to calculate DBMC cost savings, it would be necessary to collect detailed cost information about mail processing activities at origin SCFs. Currently, the mail processing costs at destination SCFs are estimated using several assumptions. Since the models in Attachment A are currently only used to estimate the cost differences between rate categories that both go through origin SCFs, the assumptions do not have a large impact on the estimated cost differences. The estimation of the cost

difference between inter-BMC and DBMC would result in comparing a rate category that goes through the origin SCF to one that does not. Therefore, the assumptions used to estimate the costs at the origin SCF would have a large impact on the estimated cost difference. Therefore, more information would be needed to use these models to estimated DBMC cost savings.

(h-i) Since an alternative method to estimate DBMC cost savings was available, it was not necessary to collect this sort of detailed information. It is my understanding that, in general, the mail processing activities at origin associate offices include collecting parcels from various sources, placing the parcels into the appropriate containers, and loading the containers onto trucks.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORY OF UNITED PARCEL SERVICE

UPS/USPS-T26-7. Refer to USPS-T-26, Attachment J, page 1 of 1.
(a) Confirm that the costs avoided by DDU are assumed to include the costs of dumping sacks at the DDU: If not confirmed, explain.

(b) Confirm that the PRC in its Docket No. R97-1 decision (Chapter V: Rates and Rate Design, page 493) chose not to assume that the costs incurred in dumping sacks would be avoided by DDU entry. If not confirmed, explain.

(c) Explain why the Postal Service has chosen not to apply the Commission's R97-1 decision in this respect in its calculation of DDU entry cost avoidance.

RESPONSE:

(a) Confirmed. This assumption is consistent with the DDU requirements.

(b) Confirmed.

(c) In Docket No. R97-1, the PRC's decision to exclude the cost of dumping sacks from the costs that DDU parcels avoid was made before the requirements for DDU were established. It is my understanding that one of the requirements of DDU is for the mailer to unload the truck and place the parcels into the delivery unit's choice of container. It is my understanding that this requirement includes the dumping of sacks.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORY OF UNITED PARCEL SERVICE

UPS/USPS-T26-8. Refer to USPS-T-26, Attachment F, pages 2 and 3, and Docket No. R97-1, USPS-T-28, Exhibits B and C.

(a) Confirm that total piece volume deposited upstream of a BMC/ASF was 97.7 million in FY 1998 (Row 6) and 112.7 million in FY 1996 (Exhibit B at 11). If not confirmed, explain in detail.

(b) Confirm outgoing mail processing costs incurred at non-BMC facilities avoided by DBMC was $53.1 million in FY1998 (Row 1) and $40.4 million in 1996 (Exhibit C at A.4.). If not confirmed, explain in detail.

(c) Explain in detail why the upstream volume decreased significantly from FY 1996 to FY 1998, but outgoing mail processing costs increased significantly from FY 1996 to FY 1998.

RESPONSE:

(a) Please see errata filed on February 18, 2000. The total piece volume deposited upstream of a BMC/ASF is 103.3 millions in FY 1998 (Attachment F, page 2, row 6). Confirmed that the FY 1996 number shown in USPS-T-28, Exhibit B is 112.7 million.

(b) Please see errata filed on February 18, 2000. The outgoing mail processing costs incurred at non-BMC facilities avoided by DBMC is $51.2 million (row 5 not row 1). Confirmed the outgoing mail processing costs avoided by DBMC parcels as estimated by witness Crum in Docket No. R97-1 was $40.4 million.

(c) There are at least two reasons why the outgoing mail processing costs avoided by DBMC parcels has increased from 1996 to 1998. The first reason is inflation. Due to inflation it is logical to expect that costs in FY 1998 would be higher than those same costs in FY 1996, holding all else equal.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORY OF UNITED PARCEL SERVICE

The second and most predominant reason for the increase in cost savings is the difference in the volume variability estimates. In Docket No. R97-1, USPS introduced new volume variability estimates that were significantly lower than they were in previous rate cases. The Commission (Opinion and Recommended Decision, Chapter III, pages 68 to 79) did not accept these new volume variability estimates. For this reason, in Docket No. R2000-1 the Postal Service decided to use volume variability estimates that are a compromise between the USPS R97-1 estimates and the PRC's estimates. (Please see Docket No. R2000-1 USPS-T-15 for a full discussion of volume variability). These volume variability estimates in this rate case are, overall, higher than the R97-1 estimates. Since higher volume variability leads to higher cost attribution, all else equal, costs and therefore cost savings are higher in R2000-1 than in R97-1.

RESPONSE OF UNITED POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORY OF UNITED PARCEL SERVICE

UPS/USPS-T26-9. (a) Provide copies of the 1998 MTAC (Mailers Technical Advisory Committee) annual report, and of the 1999 MTAC annual report.

(b) Provide copies of all minutes of MTAC meetings from December 1997 to the present.

(c) Provide copies of all studies, reports, analyses, or other documents produced by or under the auspices of, or done at the request or on behalf of, the Mailers Technical Advisory Committee which discuss DBMC, DSCF, or DDU entry discounts for any class of mail.

RESPONSE:

(a) Please see attached for 1998 MTAC annual report. Currently, there is no

1999 MTAC annual report.

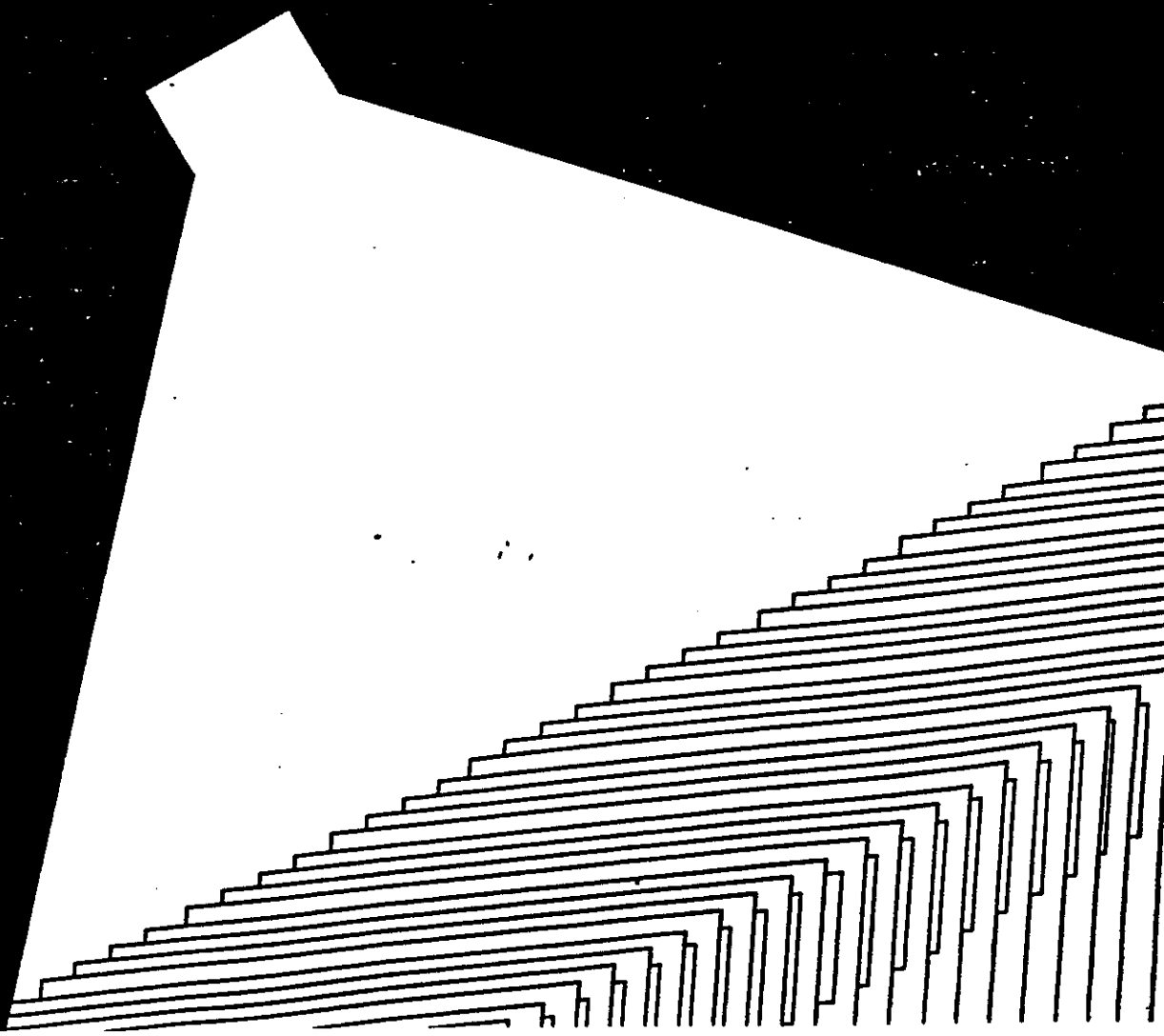
(b) It is my understanding that all available minutes are on the MTAC web page:

http://ribbs.usps.gov/mtac.htm

(c) I am not aware of any such documents.

ATTACHMENT TO RESPONSE TO
UPS/USPS-T26-9(a)

1998 ANNUAL REPORT



MTAC 1998 ANNUAL REPORT of the POSTMASTER GENERAL'S TECHNICAL ADVISORY COMMITTEE

CONTENTS

MTAC 1998 ANNUAL REPORT
INTRODUCTION

In 1997, the Mailers Technical Advisory Committee (MTAC) was reorganized to better serve the rapidly changing conditions of today's business environment while maintaining its oversight role. Today, MTAC is comprised of an Executive Committee, a Steering Committee and issue-specific Work Groups. The new structure has proven to be highly successful across myriad issues by providing insight, vision and resolve to constantly improve mail service.

MTAC's success is grounded in cooperation. The strong symbiotic relationship that exists among the U.S. Postal Service, the mailing industry, and mailing industry associations is unique in the business world. Without these groups working in concert, the ability to improve mailing services for everyone would be hindered. That's why we're proud to publish this report.

Special thanks go to the individual companies and their representatives who give so generously of their time and resources to participate in this process. The associations also are appreciated for their contributions to the MTAC process, including administrative funding, expertise and communications. From the Postmaster General to employees in each of the 10 Areas, the Postal Service continuously demonstrates its commitment to MTAC.

Under the guidance of its Communications Committee, MTAC strengthened its outreach to the mailing industry in 1998. Some of those successes include the continued development of the Web-based MTAC Issues Tracking System (MITS); a new interactive format for the MTAC sessions at the National Postal Forum; the creation of an information brochure; and the publication of this report.

Several of the 34 Work Groups active in 1998 completed their assignments during the year. Others will continue their work into 1999. The Work Group highlights singled out on the following pages list the purpose, accomplishments, and where possible, quantified results. It's an impressive list. It's an impressive process.

MESSAGE FROM THE POSTMASTER GENERAL, **William Henderson**

From its inception some 33 years ago, the Postmaster General's Mailers Technical Advisory Committee (MTAC) has been a creative and innovative forum in which postal managers and mailers of every size and type come together to discuss mutual concerns as well as review technologies and programs aimed at improving the nation's delivery service.

In our long affiliation with MTAC and its industry representatives, we have come to expect the very best in forward thinking advice. We remain committed to the work of MTAC, particularly in light of its new Work Group approach, an approach that ensures focused study and resolution of issues.

We in the Postal Service owe a large debt of gratitude to the mailers and their companies and associations for investing the hours and resources that are necessary to make MTAC successful. Without these efforts, the initiation of new products, services and concepts could not provide the same high level of benefits to both the Postal Service and the industry it serves.

We look forward to continuing this very important relationship in 1999 and into the next millenium.

MESSAGE

MESSAGE FROM VP CUSTOMER RELATIONS, **John Wargo**

Two years ago, the Postal Service and the mailing industry rebuilt the Mailers Technical Advisory Committee (MTAC). Our objective was to reinvigorate and expand the teamwork and cooperation that are the 'hallmarks' of this fine organization. Today, I am happy to report that MTAC is vibrant and strong! Most importantly, it is having a major impact on the Postal Service and those it serves.

MTAC draws from a wide range of industry and postal expertise. In fact, more than 50 industry associations and their member companies generously support their 100+ representatives that make up the MTAC organization. An added bonus to MTAC is the growing number of non-MTAC representatives who either volunteer or are recruited to lend their expertise to the work groups. MTAC is becoming more inclusive rather than exclusive.

It is this infusion of new people and new ideas that is making MTAC and its work groups such a valuable asset in charting our future course. During 1998, 34 work groups were engaged in this important work, of which 14 groups completed their assignments. The others continue to meet their milestones and will complete the work in 1999. More important, however, are the quantifiable results being produced by these work groups. MTAC's contributions are being measured in real benefits. A few of last year's successes were:

- The FSM 1000 Work Group made recommendations that will move an additional 20 percent of flats currently processed manually to a mechanized process.
- The MAIL.DAT Work Group made recommendations that resulted in a reduction of some 15,000 cartons of paper stock valued at some $300,000 from just six test sites. When this automated system is fully implemented, projected savings will climb to $5 million in paper stock each year, not to mention the countless hours saved by not having to handle and store paper reports.
- The Small Mailers Information Work Group distributed thousands of copies of a new guide to help small businesses take advantage of Postal programs and services often thought to be only available to the largest mailers.

Today, MTAC is reaching out more than any other time in its history. Business sessions at the last National Postal Forum drew more than 500 attendees. The MTAC web site, which provides up to date information on Work Group activities, has drawn thousands of visitors. During 1999, plans are to dramatically expand the distribution of MTAC information.

Finally, my appreciation goes out to the members of the MTAC Executive and Steering Committees, all Industry and Postal Work Group Co-Chairs and everyone who took the time to participate in this valuable process. In particular, I want to acknowledge Gene DelPolito, Dick Barton, Barry Brennen, Linda Augustine, Bill Olsen, and Ken Allen, who through their association newsletters report on MTAC activities, and send us a copy. I am also grateful to all of the US Postal Service officers for their assistance, especially Nick Barranca, Michelle Denny, Bill Dowling, and John Ward. I also commend Art Porwick and Dee Adona for their program management and expertise.

Our mutual commitment to MTAC is proving its value every day.

Increasing Postal Service Capital Spending Levels

Industry Work Group Leader — Joe Schick
USPS Work Group Leader — Bill Dowling

The Blue Ribbon Committee in 1997 recommended that the Postal Service and industry representatives work together to develop a strategic path leading to more effective and efficient mail production, distribution and delivery.

Acting in accordance with those recommendations, Postal Service executives disclosed to the MTAC Capital Spending Work Group the USPS strategic vision for the future. Based on that knowledge and understanding, the Work Group concluded that the USPS is moving in the right direction with a strong commitment to Information Technology. It also was able to define several areas where it felt processes could be fine-tuned to more accurately reflect the mailer's point of view. Several recommendations were presented to the Postmaster General and are currently being reviewed.

DirectLink/MAIL.DAT

Industry Work Group Leader — Dan Minnick
USPS Work Group Leader — Larry Goodman

MAIL.DAT is part of the USPS Direct Link program that uses the power of the Internet to build easy-to-use, secure communication links and streamlined business processes between itself and its customers. MAIL.DAT files contain detailed information about each mailing makeup, including the number of pieces in each package, the number of packages in each sack or pallet, and the entry points, weights and destinations of the mailing.

This Work Group was responsible for helping the USPS make significant headway in reducing its use of paper documents through the approval and use of the MAIL.DAT System. Tests of the new system were conducted in a number of areas. Preliminary results indicate that the USPS could save as much as 15,000 cartons of printed stock in one year just from the test sites. The Work Group estimates that once the system is fully implemented, the savings may jump to more than 250,000 cartons per year.

Because the MAIL.DAT system provides a wealth of information, including historical, real-time and predictive data, the Work Group also explored possibilities of using the data in other critical areas. For instance, ideas were discussed about how that data could be used to address a wide range of issues, including improved performance appraisals, processing and distribution design modeling, selecting routing criteria, and estimating staffing and equipment requirements.

WORK GROUP HIGHLIGHTS

FSM 1000 Flat Mail Sorter Issues

Industry Work Group Leader — Dick Funck
USPS Work Group Leader — John Sadler

The FSM 1000 Flat Mail Sorter Work Group, laboring under tight deadlines, recommended new regulations for extending flats barcoding to an entire new range of physical mailpieces. The mission involved solving several complex issues such as determining maximum size and weight restrictions, polywrap characteristics, and how the required separation of the pieces needs to change from those established for the Model 881 Flat Mail Sorter. The Group made several label placement recommendations. The Work Group took responsibility for developing a communication plan to explain the new regulations to industry mailers.

Looking forward, the Work Group plans to continue its work to refine the new regulations. The Postal Service is working concurrently to evaluate the capacity of the FSM 1000. The Group is considering what effect a new generation of flat sorters may have on mailers, especially if the new capabilities exceed those of the existing systems.

Address Coding Enhancement

Industry Work Group Leader — Bob O'Brien
USPS Work Group Leader — Mike Murphy

To reduce the level of uncodeable mail requiring manual sorting, the Address Coding Enhancement Work Group researched and identified the barriers to 100 percent barcoding. With that information, the Work Group then made a number of recommendations designed to improve mailer and postal processes and reduce specific problem areas by developing common Address Coding solutions.

The Work Group identified 17 specific areas as barriers to 100 percent barcoding. Several of those issues were resolved in 1998. The Work Group anticipates addressing additional issues in 1999, such as exploring new ways to synchronize mailers' database addresses with actual USPS delivery addresses. For instance, some communities and rural areas only have P.O. Box or General Delivery mail service. Problems arise when mailers use specific street addresses where mail delivery does not take place. This type of problem makes it clear that to achieve 100 percent Delivery Point Bar Codes (DPBC), new and improved address cleaning and feedback systems need to be developed for both the USPS and the industry.

Colleges & Universities Address Coding Improvement

Industry Work Group Leader Thomas Roylance
USPS Work Group Leader Mike Murphy

Working with the USPS National Customer Support Center and the industry, the Colleges and Universities Coding Improvement Work Group identified six addressing issues particular to colleges and universities. To resolve them, the Work Group developed a three-step plan to 1) identify existing college and university addresses in the USPS database; 2) identify the 218 unique Zip Codes already assigned to colleges and universities; and 3) define mutual address formats needed to work with existing parsing routines and available software.

The Group also collaborated with National Association of College and University Mail Services (NACUMS), National Association of College and University Business Officers (NACUBO) and other higher education organizations to develop an educational process through the various Area Advisory Committees and other personnel, to train list providers on the anomalies that exist within higher education address formatting.

"When you consider the collective base of postal knowledge, industry experience, business savvy and spirit of cooperation that MTAC participants bring to the process, it's no wonder that this program continues to deliver innovations and improvements for the entire mailing industry.

Lori Ware
Association of Priority Mail Users

WORK GROUP HIGHLIGHTS

Small Mailer Information

Industry Work Group Leader — Dan Goodkind
USPS Work Group Leader — Sharon Coruzzi

Small mailers often are unaware of presort and coding tools that can significantly help them use the mail more effectively. The Small Mailer Information Work Group confirmed that these mailers often are overwhelmed attempting to adhere to USPS requirements designed for large mailers.

Now, small mailers have easier access to appropriate information to guide them in the preparation of the types of mailings they most often use. The new brochure, "Now Small Mailers Get a Big Business Advantage," was distributed to Postal Business Centers and Bulk Mail Entry Unit Managers throughout the country. The guide describes cost-saving mail preparation opportunities for small business mailers and shows them how to practice good address hygiene. It also describes proper mailpiece preparation, and explains postal sortation in a realistic context.

Year 2000 Compliance

Industry Work Group Leader — Josie Pribbenow
USPS Work Group Leader — Bob Stephens

The mission of the Year 2000 Compliance Work Group was to create a sustainable mechanism for sharing information about Year 2000 issues, ongoing updates on the progress of fixes, and specific action plans and strategies to enable all parties to continue business operations into the next millenium.

The Work Group identified several critical system relationships and their potential Year 2000 impact. Working from that prioritized list the Work Group constructed a methodology that will systematically address the key issues relating to Y2K compliance, and ensure that those solutions are clear, concise and consistent.

Form 8125 Redesign

Industry Work Group Leader — Rick Kropski
USPS Work Group Leader — Cheryl Beller

When mail is prepared for destination entry and the resultant work sharing discounts, a Form 8125 is used to document the mailing and its associated postage. Over the years, numerous versions of Form 8125 have been approved for use, complicating the process for postal employees and mailers alike.

The Form 8125 Redesign Work Group contributed to the development of two new, more effective forms for entering mailing information into the USPS system. A new Form 8125 for single mailings, and a standardized facsimile Form 8125-C for Plant-Verified Drop Shipments (PVDS) replace the variety of formats currently being used. This will help ensure the consistent placement of key information for easier and more efficient processing at all Bulk Mail Entry Units (BMEU).

A completed Form 8125 confirms that the appropriate postage was paid for a corresponding shipment. The new Form 8125-C consolidates to one document multiple mailings going to the same destination entry office that are prepared by a single mailer, verified and cleared for dispatch on a single day, and transported on the same vehicle to the destination entry office.

The new Forms 8125 replaced all other versions on January 10, 1999.

Presort Optimization

Industry Work Group Leader — Joe Lubenow
USPS Work Group Leader — Barry Elliott

Meeting several times during 1998, the Presort Optimization Work Group studied, devised and recommended changes in presort software and sortation levels to improve the overall pattern of entering mail into the proper containers by reducing or eliminating residual mail. The group also explored ways to more efficiently use containers.

The group's work resulted in improved techniques to presort palletized periodicals and Standard (A) Mail flats. The improvements are based on protecting the Sectional Center Facility pallet level through the reallocation of packages from finer-level pallets to higher level pallets. Additional improvements are accomplished by increasing the amount of mail sorted to the 5-digit level by creating a new Domestic Mail Manual (DMM) labeling list L001. These changes make handling palletized periodicals and Standard A Mail more consistent.

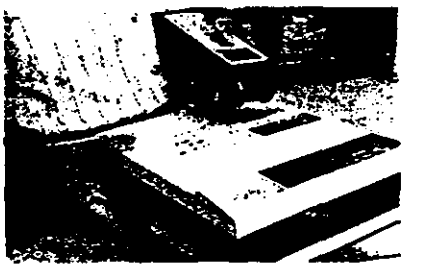
"The new MTAC structure represents the deepened and renewed working partnership between the mailing industry and the Postal Service. Much time and effort is spent in the Work Groups and the results are great. The Groups promote creative initiatives that are mutually beneficial for our immediate concerns and for the future of mailing. I'm appreciative of all the work being done, and am proud to be an MTAC representative."

Laine Ropson
Major Mailers Association

WORK GROUP HIGHLIGHTS

Parcel Barcode Standardization

Industry Work Group Leader — Lloyd Karls
USPS Work Group Leader — Julie Rios



The Work Group tackled the need to develop a standardized barcode for parcels that could provide more robust documentation, such as ZIP Code, delivery confirmation and insurance information. The challenge was to develop a barcode that was accurate and reliable, could be read at standard production rates, and would be compatible with existing hardware, software and printing technologies.

The new barcode also needed to be flexible and "smart" enough to accomplish multiple purposes. Once a mutually agreeable standard was developed, both the industry and the USPS began the task of evaluating how the change would effect their respective operations. They also worked together to adopt a suitable implementation schedule.

This Work Group is an excellent example of what can be accomplished through a cooperative approach. Shippers will benefit from having a standardized, space efficient barcode that is flexible enough to use in tracking, routing, automating insurance labeling, and many other future services. The Postal Service benefits through simplified reader programming requirements, and with more accurate and timely information that can be used to assist both customers and USPS management.

Periodical Service

Industry Work Group Leader — Tom Tully
USPS Work Group Leader — Paul Vogel

Following a year-long review of periodical delivery service performance throughout the country, the National Periodical Service Improvement Work Group defined a significant need to train small volume mailers to use a "best practices" approach for preparing their periodical mailing in a way that is consistent with their needs.

The Work Group is exploring a variety of solutions that will address mail makeup, mail acceptance, and information systems particular to periodical mailings. Additionally, based on this Work Group's recommendations, the Postal Service is developing a training program tailored to periodicals mailers that teaches a "best practices" approach to preparation. The training will be available for publishing associations and local mail acceptance specialists to help community periodicals mailers prepare their mailings more efficiently and cost-effectively.

Maximizing Value of Planet Code

Industry Work Group Leader — Bob Rosser
USPS Work Group Leader — Paul Bakshi

The Planet Code Work Group has made progress toward resolving one of the central issues for mailers – what happens to the mail between the time it enters the Postal Service and is delivered to its ultimate destination. Both Origin Confirm and Destination Confirm supply real-time electronic data on the status of individual mailpieces as they move through the Postal System. Since Planet Code is a variant of the existing PostNet barcode, it is able to take advantage of existing technology to provide for today's information infrastructure.

Origin Confirm benefits mailers by providing advance information about orders, early notification of responses to mailings, and data to help forecast staffing requirements. Destination Confirm benefits include knowing which unit loads of mail — including truckloads, pallets, and trays — have been processed. It also provides notification of estimated delivery times. The USPS is implementing Planet Code reporting in all automated letter processing equipment by July 1999, and will begin deployment in flats later in 1999.

Information Rich Mailpiece Barcodes

Industry Work Group Leader — Joe Lubenow
USPS Work Group Leader — Paul Bakshi

By using the Planet Code in conjunction with the PostNet barcode of today, mailers can gain access to tracking information and advance notice of responses to offers. The question to be answered is what information will be contained in the mailpiece barcodes of the future. The USPS Engineering Department is evaluating techniques to put more information into the same address area now used by the Planet Code and PostNet. The Information Rich Mailpiece Barcode Work Group is studying how best to use the additional information capacity.

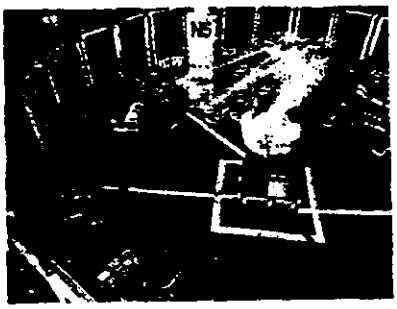
Some ideas under consideration are putting class and rate information on the mailpiece to assist the USPS with cost accounting; adding "desired date of delivery" information to create a more precise window for targeting messages; and further automating requests for ancillary services.

"MTAC provides a highly effective interface between the mailing industry, its associations and the U.S. Postal Service. The high level of commitment demonstrated daily by this troika is directly responsible for the outstanding results MTAC Work Groups regularly produce. That commitment has made MTAC a model of cooperation others can only hope to achieve."

Dick Funck
Magazine Publishers of America

Definition and Publication of Service Standards

Industry Work Group Leader — *Jerry Jensen/Laine Ropson*
USPS Work Group Leader — *Joseph Harris*



The Definition and Publication of Service Standards Work Group was tasked with reviewing existing service standards for all classes of mail. Once defined, the Work Group suggested changes and reporting requirements on existing standards and defined new standards where none existed. The final step is to link the newly defined standards to customer satisfaction metrics.

The Work Group focused on current USPS mail collection, processing and distribution processes. To assist the Work Group, the USPS provided detailed information on a number of services and projects currently underway, including PLANET Code, Delivery Confirmation, External Performance Measurements, and the Service Commitment Directory.

Acceptance and Certification Improvements

Industry Work Group Leader — Jon Wittnebel
USPS Work Group Leader — Michele Denny

The Acceptance and Certification Improvement Work Group met six times over the past 12 months to review various issues associated with mail piece acceptance and mailer certification processes. The group conducted an industry survey that generated 93 responses. The survey was sent to members of the Mail Advertising Service Association (MASA), the Advertising Mail Marketing Association (AMMA) and other major mailing groups.

The information identified three recurring issues– standardization, training and flexibility. Using this information as a base, the Work Group recommended changes to improve the acceptance and certification process, including:

- Mailpiece Design – A method to ensure consistent USPS approval or disapproval of mailpieces at Business Mail Entry Units (BMEU);
- List/Data Processing – Establish more flexibility in automated presort sequences;
- Manufacturing – Certification of mailers on the use of barcode readers/verifiers;
- Mail Preparation – Earlier USPS mail preparation reviews;
- Acceptance – Increased information about MAIL.DAT and associated viewers; and
- General – a national permit number that would be valid at multiple sites for multiple products.

Improving Standard (A) Catalog Mail Delivery

Industry Work Group Leader — Todd Kintopf
USPS Work Group Leader — Joseph Harris

The Standard (A) Catalog Mail Delivery Improvement Work Group's objective is to improve acceptance, processing and delivery of time-critical mail. The result would be an improved in-home window of delivery to customers and a simultaneous increase in USPS mail volumes.

During 1998, the Work Group addressed a variety of topics such as expected in-home delivery dates for catalogs; the Drop Shipment Appointment System (DSAS); labeling lists information; and overall Bulk Mail Center (BMC) operations. Based on Work Group input, Sectional Center Facility (SCF) seed samplings now are collected and analyzed with industry members serving as reporters to annotate and date the samples. Examples of the information they collect include the type of mail piece (automated or non-automated) and mail make-up. With this data, opportunities can be identified that can improve processes, as well as improve the communication channels for sharing that information.

"Within the MTAC structure, the Work Groups are ground zero. It is here that the melding of ideas, directions and positions takes place. It's exciting and gratifying to watch this cooperative process continually generate positive results. All of the members of MTAC and especially all those who serve on its various Work Groups are to be commended for an outstanding job."

Gene Del Polito
Advertising Mail Marketing Association

OTHER WORK GROUPS

1997 Fall Mailing Season

Industry Work Group Leader
Phil Parizino

USPS Work Group Leader
Pat Mendonca

Centralized Postage Payment / Direct Link

Industry Work Group Leader
Dick Funck

USPS Work Group Leader
Ed Wronski

DPBC & Default Code Rules

Industry Work Group Leader
Bob O'Brien

USPS Work Group Leader
Mike Murphy

Drop Ship Appointment System (DSAS) Enhancements

Industry Work Group Leader
Rick Kropski

USPS Work Group Leader
John Mulkay

Eliminate Barriers to 100% Delivery Point Barcoding

Industry Work Group Leader
Bob O'Brien

USPS Work Group Leader
Mike Murphy

Industry Executive Exchange Program

Industry Work Group Leader
Jack Widener

USPS Work Group Leader
Stephen Leavey

Information-Based Indicia Program

Industry Work Group Leader
Mury Salls

USPS Work Group Leader
Roy Gordon

Package, Container & Pallet Integrity

Industry Work Group Leader
Russell Shores

USPS Work Group Leader
Ralph Moden

Parcel Reclassification

Industry Work Group Leader
Lloyd Karls

USPS Work Group Leader
Ernie Collins

Parcel Service Improvement

Industry Work Group Leader
Phil Parizino

USPS Work Group Leader
Mike Spates

Pricing & Classification Flexibility

Industry Work Group Leader
Vince Giuliano

USPS Work Group Leader
Dan Foucheaux

Provide One-Time ACS Option

Industry Work Group Leader
Joe Monastro

USPS Work Group Leader
Audrey Conley

Publication Watch

Industry Work Group Leader
Joyce McGarvy

USPS Work Group Leader
Harry Barnett

Return of Opened Parcels

Industry Work Group Leader
Joe Monastro

USPS Work Group Leader
Rocky Matthews

Sharing Data

Industry Work Group Leader
Dean Pieters

USPS Work Group Leader
John Reynolds

Unit Load Tracking

Industry Work Group Leader
Jim Schemmel

USPS Work Group Leader
Rick Glickman

Postmaster General's Mailers Technical Advisory Committee

The purpose of the Mailers Technical Advisory Committee (MTAC) is to provide information, advice, and recommendations to the USPS concerning various technical aspects of the mailing industry. An Executive Order signed in 1965 granted federal agencies and departments the authority to create advisory committees. Taking the lead, 18 industry representatives were selected to sit on the Postmaster General's first advisory committee. Its purpose was to advise the Postal Service in technical matters based on the group's collective experience in the use of various mail services. The goal was to assist the USPS in determining the best course of action to improve service and postal operating efficiency.

MTAC has proven to be extremely valuable and has grown to include more than 50 mailing industry associations with more than 100 industry representatives serving on the advisory body. And although its core objective remains the same, it has continually evolved to provide the ever more sophisticated technical advice and recommendations the USPS needs to meet the growing challenges of the 21st century.

Only mailing industry associations are eligible for membership in MTAC. By limiting membership to associations and not individual companies and people, the MTAC membership reflects a broader spectrum of the mailing community in terms of classes of mail and major industries that depend on mail services. Each member association is allowed to seat two representatives on the committee. The member associations pay dues, which are used for administrative expenses. The association representatives participating in meetings pay their own travel expenses. The organization functions primarily through Work Groups made up of industry and postal representatives. A Work Group can only be established by the MTAC Executive Committee to address a specific issue. Once established, Work Groups may recruit non-MTAC members to help build a high level of expertise.

The role of the USPS in MTAC is to provide timely, comprehensive communication on postal matters. The Postal Service uses the committee as a technical resource on postal strategies, products, and services by soliciting input and providing responses on specific issues. It also works with MTAC to support the implementation of its plans.

General membership meetings are held four times each year. The USPS Chair may call additional meetings. The USPS Chair provides minutes and meeting notices, including agendas to association executives, representatives and selected USPS officials. Work Group leaders call meetings and teleconferences. The status of each Work Group is reported at quarterly MTAC meetings. Current information on the Work Groups also can be found at the MTAC Web site.

MTAC exemplifies a collaborative approach between the USPS and mailers for identifying and resolving issues. Both parties share the responsibility and commitment to maintain a successful working relationship that produces the intended results.

Contact Information

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or

Visit the MTAC Issue Tracking System (MITS) Web site: http//ribbs.usps.gov/htm/mtac.htm

MEMBERSHIP

Association Membership

Advertising Mail Marketing Association
Agricultural Publishers Association
Alliance of Nonprofit Mailers
American Bankers Association
American Business Press
American Gas Association
American Petroleum Institute
Association of American Publishers, Inc.
Association of American Railroads
Association of Paid Circulation Publications, Inc.
Association of Priority Mail Users
Chamber of Commerce of the United States
City & Regional Magazine Association
Classroom Publishers Association
Continuity Shippers Association
Direct Marketing Association
Direct Selling Association
Edison Electric Institute
Envelope Manufacturers Association
Financial Stationers Association, Inc.
Florida Gift Fruit Shippers Association
General Services Administration
Gravure Association of America, Inc.
Information Technology Industry Council
International Association of Cross Reference Directory Publishers
International Business Forms Industry, Inc.
International Labor Communications Association
Magazine Publishers of America
Mail Order Association of America
Mail Advertising Service Association International
Mailorder Gardening Association
Mail Systems Management Association
Major Mailers Association
National Association of Advertising Distributors, Inc.
National Association of College & University Business Officers
National Association of College & University Mail Services
National Association of Manufacturers
National Association of Perishable Shippers
National Association of Presort Mailers
National Catholic Development Conference, Inc.
National Federation of Nonprofits
National Industrial Transportation League
National Newspaper Association
National Postal Policy Council
National Retail Federation
National Small Shipments Traffic Conference, Inc.
Newsletter Publishers Association
Newspaper Association of America
Offering Envelope Association
Parcel Shippers Association
Printing Industries of America, Inc.
Recording Industry Association of America
Red Tag News Publications, Inc.
Religious Press Association
Western Publications Association
Yellow Page Publishers Association

MTAC Executive Committee

U.S. Postal Service Chair
John Wargo

U.S. Postal Service Vice Chairs
Arthur Porwick and Pat McGee

Program Manager
Delores Adona

Industry Chair
Chris Rebello

Industry Vice Chair
Joe Schick

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Yvonne Reigle

Industry Vice Chair Elect
Joe Lubenow

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T26-10. Confirm that Parcel Post plant-verified dropshipped mail must pass through both a verification procedure prior to transportation by the mailer to the destination-entry point and an acceptance procedure at the destination-entry point. If not confirmed, explain in detail.

RESPONSE:

Confirmed.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T26-11. Confirm that under both the verification procedure and under the acceptance procedure the entire dropshipment must be examined. If not confirmed, explain in detail.

RESPONSE:

It is my understanding that both acceptance and verification procedures often use sampling or other estimation techniques; and therefore not every parcel in the shipment is examined.

REVISED RESPONSE
OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T26-12. Explain in detail the cost category in which the verification costs for Parcel Post plant-verified dropshipped mail are included, and provide the actual costs for this procedure in the Base Year.

RESPONSE:

There are no estimates relating specifically to the costs of verification of dropship shipments. It is my understanding that in the base year these costs are captured in the IOCS data system in the BMCs platform cost pool.

REVISED RESPONSE
OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T26-13. Explain in detail the cost category in which the acceptance costs for Parcel Post plant-verified dropshipped mail are included, and provide the actual costs for this procedure in the Base Year.

RESPONSE:

There are no estimates relating specifically to the costs of acceptance of dropship shipments. It is my understanding that in the base year these costs are captured in the IOCS data system in the MODs LD79 cost pool and Non-MODs allied labor cost pool. In addition, a small amount of these costs could potentially fall into MODs platform cost pool.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T26-14. Provide all available information with respect to the percentage of Parcel Post dropshipped mail that is plant-verified.

RESPONSE:

It is my understanding that while it is possible for mailers to enter non-plant-verified dropshipped Parcel Post, the vast majority of Parcel Post dropshipped mail is plant-verified. I am not aware of any documentation to show the actual proportion of dropshipped Parcel Post that is plant verified.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T26-15. Explain in detail:
(a) What you believe to be the relationship between the verification and acceptance costs for intra-BMC and inter-BMC mail in comparison to the verification and acceptance costs of dropshipped mail.
(b) How the proposed Parcel Post dropship cost savings take into account this relationship.

RESPONSE:

a. I do not know the relationship between the verification and acceptance costs for intra-BMC and inter-BMC in comparison to the verification and acceptance cost of dropshipped mail.

b. Please see response to UPS/USPS-T26-12 and 13 above. Since the costs of acceptance are collected n the MODS LD79 and non-MODS allied labor pool, these costs have been excluded from the costs that BMC parcels avoid. In addition, I have no reason to believe that the verification of DBMC is significantly greater than the acceptance of inter-BMC and intra-BMC. Therefore, there was no need to make additional adjustments.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T26-16. Refer to page 22 of USPS-T-26.

(a) Provide all reasons why Alaska air non-preferential costs should be assigned to the inter-BMC rate category.

(b) Provide all reasons why Alaska air non-preferential costs should be assigned to the intra-BMC rate category.

(c) Provide all reasons why Alaska air non-preferential costs should not be assigned to the DBMC rate category.

(d) Provide your understanding as to the allocation of Alaska air non-preferential costs to the inter-BMC, intra-BMC, and DBMC rate categories under the methodology used by the pricing witness in the last rate case.

(e) Explain the rationale for any change in the general allocation of Alaska air non-preferential costs to the inter-BMC, intra-BMC, and DBMC rate categories under your proposed treatment as opposed to that of the pricing witness in the last rate case.

RESPONSE:

(a-c) Since mail destinating in Alaska is not eligible for the DBMC rate, DBMC mail should not incur any Alaska non-preferential costs. I allocated Alaska non-preferential costs to only those rate categories that incur those costs, inter-BMC and intra-BMC.

(d) It is my understanding that in the previous rate case, the pricing witness allocated Alaska Air non-preferential costs to all Parcel Post rate categories by means of an additional mark-up.

(e) The Parcel Post transportation methodology was changed to better represent how costs are incurred by the rate categories. Since Parcel Post destinating in Alaska is not eligible for the DBMC rate, Alaska air non-preferential costs should not be incurred by DBMC parcels. This is consistent with the methodology employed by the PRC in Docket No. R97-1.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T26-17. Refer to the "Summary" worksheet in file LR103PP0798.xls" contained in USPS-LR-I-103. Explain in detail why the IOCS operation 07 (platform acceptance) volume variable costs for certain cost groups (e.g., $148,000 for "spbs 0th") were not included in line 4 of Attachment F of USPS-T-26 when these costs are Outgoing costs as summarized in the "Basic" worksheet in file "LR103PP0798.xls."

RESPONSE:

The purpose of Table 3 in LR-I-103 is to separate out outgoing operation 07 platform acceptance costs for use as a proxy as the platform acceptance costs that DBMC parcels will incur (this is done by excluding these costs from the costs that DBMC parcels avoid). It is my understanding that operation 07 costs in SPBS represents an employee going to the platform to get parcels and is not representative of costs that DBMC parcels will incur. For this reason, the outgoing operation 07 costs in the SBPS cost pool were not included in line 4 on page 2 of Attachment F.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T26-18. Refer to the "Summary" worksheet in file "LR103PPBF98.xls" contained in USPS-LR-I-103. For each MODS and non-MODS cost pools in which there are volume variable costs for Outgoing Parcel Post (e.g. $926,000 for "fsm" at line 3 in column 11), describe what type of costs are captured in the cost pool and why there would be Outgoing Parcel Post costs in that cost pool.

RESPONSE:

Please see witness Degan's testimony (USPS-T-16) starting on page 36 for an explanation of the types of costs that go into cost pools. It is my understanding that occasionally costs show up in cost pools where they are unexpected. It is further my understanding that the reason for this is the following. The IOCS handling tallies record the mail actually being handled by the employees recorded as working a given mail processing operation (cost pool), rather than the mail expected to be handled in a given operation. To the extent certain shape identification criteria overlap, it will be possible to process some mailpieces in multiple shape-related mailstreams, and particularly in manual operations.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T26-19. Refer to your response to UPS/USPS-T26-7.

(a) Provide all available documentation regarding the requirements for the mailer of DDU parcels to unload the truck and place the parcels into the delivery unit's choice of container.

(b) Provide all available documentation with respect to the delivery unit's choice of container, including, but not limited to:

(i) the type of container,
(ii) whether the type of container varies by the size of parcels, and
(iii) where in the delivery unit the container is located.

RESPONSE:

(a) DMM § E652.3.8 requires that the mailer unload and place palletized and bedloaded parcels into "a container specified by the delivery unit." It is my understanding that this requirement also includes the dumping of sacks.

(b) To the best of my knowledge, this information is not available.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-126-22. Refer to your responses to UPS/USPS-T26-10 through 15.
(a) Confirm that acceptance costs for plant-verified DBMC parcels entered at the BMC are contained in the BMC platform cost pool. If not confirmed, explain in detail.
(b) Confirm that those intra-BMC and inter-BMC Parcel Post pieces that are entered at the window do not incur verification or acceptance costs. If not confirmed, explain in detail.
(c) What was the volume of intra-BMC Parcel Post entered at the window (i.e., not entered in bulk at the platform) in FY1998?
(d) What was the volume of inter-BMC Parcel Post entered at the window (i.e., not entered in bulk at the platform) in FY1998?

RESPONSE:

(a) There may be some confusion about the terms "acceptance" and "verification." I have been told that there is no set definition for which part of the plant-verified dropship system is considered "acceptance" and which part is considered "verification". The words are interchangeable. By definition, plant-verified mail is accepted/verified at the mailer's plant (mail is checked to see if the 8125 is correct), and; therefore these costs *are not* included in the BMC platform cost pool. Plant-verified mail is also accepted/verified at the BMC (mail is double-checked to ensure the parcels match what is written down on the form 8125). These costs *are* included in the BMC platform cost pool.

(b) Confirmed that parcels entered over the window do not incur any additional acceptance or verification costs over the incurred window acceptance costs.

(c) To the best of my knowledge, these data are not available.

(d) To the best of my knowledge, these data are not available

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T26-23. Refer to USPS-T-26, Attachment X. Describe in general terms how the results shown in this Attachment are used in the analysis or projection of Parcel Post costs.

RESPONSE:

The cost reductions calculated in Attachment X (page 2, rows 13 and 21) of my testimony are used by Witness Kashani as cost reductions due to the shift in Parcel Post towards more dropship. It is my understanding that these savings are distributed to Mail Processing component in cost segment 3 (USPS-T-14, Workpaper I, Volume 1 of 2, page 201) and Highway component in cost segment 14 (USPS-T-14, Workpaper I, Volume 1 of 2, page 559).

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS EGGLESTON
TO INTERROGATORIES OF UNITED PARCEL SERVICE

UPS/USPS-T26-24. Refer to your response to UPS/USPS-T26-16 and to the attached page of the MTAC "Parcel IRT Meeting Minutes" from May 14, 1998, which indicates that the DSCF rates and DDU rates will apply in Alaska.

(a) Confirm that Parcel Post entered at a destination SCF in Alaska is eligible for the DSCF rate in Alaska. If not confirmed, explain.

(b) Confirm that Parcel Post entered at a DDU in Alaska is eligible for the DD rate in Alaska. If not confirmed, explain.

(c) Confirm that Parcel Post mail entered at the DSCF rate in Alaska will incur Alaska air non-preferential costs. If not confirmed, explain.

(d). Confirm that Parcel Post mail entered at the DDU rate in Alaska will incur Alaska air non-preferential costs. If not confirmed, explain.

RESPONSE:

(a) Confirmed.

(b) Confirmed.

(c & d). Parcel Post entered at the DSCF and DDU rate in Alaska will incur Alaska air non-preferential costs. Since the costs used in my Parcel Post transportation model are test year costs extrapolated from base year costs, costs associated with DSCF and DDU are not included in the model. That is the reason why the Parcel Post transportation model allocates total Parcel Post transportation costs to inter-BMC, intra-BMC and DBMC and then estimates DSCF and DDU costs separately. It should be noted that because DSCF and DDU were implemented in January 1999, my Parcel Post transportation model cannot be used, as is, with FY 1999 data.

CHAIRMAN GLEIMAN: Is there any additional written cross examination for this witness? If not, that brings us to oral cross examination.

Four parties have expressed an interest in oral cross examination of this witness: The Continuity Shippers Association, Florida Gift Fruit Shippers Association, Parcel Shippers Association and United Parcel Service.

Is there any other party that wishes to cross-examine the witness? If not, we will begin with Continuity Shippers Association.

CROSS EXAMINATION

BY MR. HOROWITZ:

Q Good morning, Ms. Eggleston.

A Good morning.

Q I am Aaron Horowitz on behalf of the Continuity Shippers Association. I request you to turn to page 32 of your testimony, 32 to 36, looking at the mail processing costs. Do you have that?

A I have it.

Q The mail processing costs are based on the nondrop ship Parcel Post and single piece Special Standard, is that correct?

A No, that is not correct.

Q Well, let's try it this way. What is the unit model Special Standard B mail processing costs -- those are

49.8 cents -- is that correct?

A Special Standard B?

Q Correct.

A Which category?

Q Nondrop ship single piece Special Standard.

[Pause.]

BY MR. HOROWITZ:

Q Look at Attachment P, page 1, the weighted average model cost is 49.8 cents.

A Yes, that has a presort and it also has all sorts of Special Standard in it.

Q Special Standard and model costs is 49.8 cents?

A The model costs, yes.

Q And the BPRS shown in Attachment T, page 1, the weighted average model cost is 34.5 cents?

A The model costs only, yes.

Q And there is approximately a 30 percent difference between the two of those?

A I'll accept that subject to check.

Q And what I wanted to look at is on page 33, the difference between the two those numbers, as you note, is that you have looked at several inputs to account for the unique characteristics of BPRS to basically look at why this approximately 30 percent difference, so looking at page 33, one is you said you changed the average cubic feet to

reflect the average cubic feet of BPRS parcels.

Did the average cubic feet of BPRS parcels being approximately twice as small as Special Standard, how did that account in your model?

Did that increase the costs, decrease the costs, or not affect the costs?

A My model, just to make sure we are clear, I have a special model for Special Standard, BPRS and mail processing, although they are all very similar.

I think there's been some confusion because some of the inputs into my BPRS model are proxies from the Special Standard model.

I just want to make that clear.

Q Okay.

A With all the models, the smaller the cube you put in the model, holding all else equal, assuming they would all be machinable or assuming they would all be non-machinable, holding that equal, it would result in lower costs.

Q Do you know how much of, for the BPRS how much of the approximately 30 percent difference is accountable due to the average cubic feet of BPRS being 0.08?

[Pause.]

THE WITNESS: In my answer to CSA/USPS-T26-20 -- you asked me what the model costs would be for BPRS if

instead of the BPRS cubic feet I entered in the Special Standard cubic feet of .19.

My answer in part (b) is, "Using the average cube of Special Standard, which is .19 and the BPRS mail processing model results in an estimated mail processing cost of 72.8 cents. This is 15.7 cents higher than the estimated BPRS unit mail processing costs."

Here I am comparing the total estimated cost, not just the model cost which you referred to earlier, and that is only from adding the cubic feet in.

BY MR. HOROWITZ:

Q Can you right now tell me, just looking at the weighted average costs, not the total costs, what the difference would be?

A No, I cannot. I would need to use the Excel spreadsheets.

Q Looking at the machinability, could you tell me how much the approximately 30 percent difference is because of machinability, number (b) on page 33?

A I am not sure I can do that, because they are two different models. I wouldn't know what assumptions you -- I couldn't do it anyways without having my Excel spreadsheet but I would need to know what two things you want me to compare.

Q Special Standard includes 17 percent nonmachinable

parcels, correct?

A That is correct.

Q And BPRS is 100 percent machinable?

A That is correct.

Q Does the weighted unit model cost at all decrease because of that difference between Special Standard having 17 percent nonmachinable and BPRS being 100 percent machinable?

A There are many different reasons why the Special Standard model has a different result than the BPRS model.

I cannot separate -- I cannot compare the two directly to say what part nonmachinability affects.

Q Does it at all affect it, do you believe?

A Holding all else equal, nonmachinable parcel would be more expensive than a machinable parcel.

Q Looking at (d), the CRA adjustment factors on page 34 of your testimony --

A I have it.

Q In this case, you did not do modeling comparing both parcel return service and special standard; you used the same CRA adjustment factors for special standard directly for BPRS; is that correct?

A In the absence of a CRA adjustment factor for BPRS, I had to use a proxy, and my proxy was the special standard CRA adjustment factors.

Q And in using those, you did not account for either the smaller size, smaller cube, smaller weight, and difference in machinability in deciding -- in adjusting the CRA adjustment?

A No. I didn't feel it was necessary, because a CRA adjustment factor only accounts for -- the proportional CRA adjustment factor accounts for variances in the inputs, and is only 1.04, so it doesn't have a large impact.

The fixed CRA adjustment factor accounts for things that are not included in the model.

And in the special standard model, I model a majority of the costs that are related to cube and non-machinability.

So there is not a large portion of those non-machineabilities or larger cube aspects in the CRA adjustment factor.

In addition, I had other reasons to believe that BPRS could have some characteristics that would make it more costly than special standard.

It's a 100 percent return, and we just allowed it to be -- you can have open and resealed parcels in the BPRS mail stream. I have not studied it, but I believe that it means that there is probably a greater probability that BPRS parcels will become unwrapped and will need rewrapped, will end up in loops in the system.

. The return address could be obliterated or the return label could not be clear. These pieces probably have a higher proportion of loops and rewrap and result in some higher costs.

Q Isn't it true that the reason the special standard was used as a proxy because that also contains lots of returns?

A It does contain lots of returns. It does not contain a 100 percent of returns, and it does not contain resealed parcels.

Q So it's your understanding that no open parcels are included in Special Standard B?

A No open and resealed parcels, yes.

Q And if there were, then if there were parcels that were opened and resealed in the Special Standard B, that could affect whether or not the CRA adjustment should be affected?

A It's not as simple as that. You'd have to look at the proportions of open and resealed parcels, and you'd have to study how many in both aspects -- how much problem they're causing.

Q My understanding is that one of the reasons the Special Standard B was used as a proxy is because in for those there is a substantial number that go out Standard A and are returned Special Standard B, and in BPRS, they all

go out Standard A and are returned as B -- excuse me.

I want to make sure I get this right. My understanding the reason the Special Standard B was used as a proxy was because they go -- there is a substantial number that go out Standard A, and are returned Special Standard B.

And with BPRS, they go out Standard A, and are returned as BPRS; is that the reason it was used as a proxy?

A That was -- it was the most similar mail stream to BPRS. But it still doesn't have 100 percent returns, and you are still not allowed to open and reseal a parcel and return it into the mail stream for Special Standard B as a return, unless the person, the individual, pays for it.

I'm talking about BPRS, you are now allowed to -- I'm allowed to open up my package. I don't want it. Reseal it, and just put it back in the mail stream.

Q And if that same -- in fact, whether or not it's formally allowed by the rules, that same may occur with Special Standard B returns?

A I would assume it would occur less, since it's not allowed in the rules.

Q Are you aware that before BPRS was changed to allow open resealed parcels by the rules, there were -- that did occur, and it did occur quite frequently?

A I know at least that it occurred. I did not know the frequency it occurred.

Q And would you believe that it also occurs with Special Standard B?

A I could believe that it's possible, yes.

I can't say whether it does or does not.

Q In looking the fixed CRA adjustments, which is at Attachment P, page 2 --

A I have that.

Q You're faster than I am. I was wanting to understand a little bit about why there are certain cost pools that have costs in them.

For example, the business reply mail, No. 18, shows 37.3 cents.

A And your question is why do costs show up there?

Q Correct.

A In my answer to CSA/USPS-T-26-24, I was asked in a series of questions -- I think 24 to 31 -- why costs ended up in certain cost pools.

In my response to Question 24, I answered that trying to summarize it, that IOCS handling tallies record the mail actually being handled by the employees, recorded as working a given mail processing operation, rather than mail expected to be handled in a given operation.

To the extent certain shape identification criteria overlap, it will be possible to process some mail pieces in multiple shape-related mail streams, in

particular, manual operations.

In addition, there is further confusion because there's not a one-to-one relationship with IOCS activities in Mods cost pools.

I can continue reading on.

Q Well, so in essence, the fixed costs are not things that you would expect there to be and should not be something related to parcels?

A They wouldn't be expected, but there's reasons why they show up in those cost pools.

Q The person recording the business reply, for example, that person was actually working business reply mail?

A My understanding of it -- and I am not a cost pool expert. I have a general understanding, enough to allow me to use them in the models -- is that I believe they could be clocked into that activity, but actually be dealing with Special Standard B.

But, like I said, I'm not an expert. I believe Witness Van-Ty-Smith would be able to better answer some of these questions in more detail.

Q So rather than the mail being worked, it's clocking the person, in essence? I'm really not trying to be complicated here.

A That's my general understanding, but I'm not 100

percent certain.

Q And that would all be the same for bar code sorters, letter sorters?

A Yes.

Q I want to turn a little bit to transportation issues.

A Okay.

Q You assume that 20 out of every 21 BPRS parcels are inter-BMC, and therefore one out of the 21 are intra-BMC?

A Yes, that is correct.

Q And what's the basis of your using those numbers?

A We found the majority of BPRS mailers and the vast majority of BPRS parcels were mailed and returned on a pretty national level.

And since there are 21 BMC service areas, we assumed an equal distribution of parcels on their return trip in each of the BMC service areas.

Q That assumption isn't somewhat contrary to the 1998, as revised, cost study which showed that one of the eight mailers was not a national mailer?

A I said the majority of BPRS parcels. Still, there's 96 percent of the parcels, because the BPRS mailer that was not national was a very small-volume mailer.

Q And the Parcel Post and Special Standard B which

are used as the input, have greater than 20 out of 21 parcels that are intra-BMC?

Excuse me, greater out of -- less than 20 out of 21 inter; greater than one out of 21, intra?

A Yes, that is correct.

Q Looking at the zone distribution for inter-BMC parcels for BPRS, you used the same zone distribution as for Parcel Post?

A I'm sorry, I don't understand the question. Do you have a page number I can refer to?

Q Let me try it, and I'll just -- that was sort of a predicate.

What I'm trying to look at is, BPRS users are located in areas that would tend not to receive greater than Zone 5 distance.

A A few of them are. And when I say they have a tendency not to, does not mean that they would not ever. It just where they are located.

Q And in looking at Parcel Post, the more than 20 percent of Parcel Post cubic feet are sent beyond Zone 5?

And you can look at Attachment N, page 2, if you would like.

A Cubic feet or cubic foot miles? I'm sorry.

Q Well, I am going to get to both.

A Okay.

Q So, the cubic feet inter-BMC Parcel Post is more than 20 percent?

A Yes, that is correct.

Q And cubic feet miles, it is around 50 percent?

A I will accept that subject to check.

Q And in comparing Parcel Post to BPRS, those, you did not use those same percentages?

A I used the costs, the average costs of Parcel Post. So I think it still holds true because it doesn't -- as long as the cubic feet and cubic foot mile relationship is the same, I have not assumed that BPRS -- I have not assumed the same percentages in each zone. I have just assumed that the cost in each zone is the same.

Q In fact, the transportation cost for BPRS is higher than Parcel Post in Zones 1 to 4, I believe it is?

A What are you comparing, inter, intra, DBMC? I don't --

Q In your testimony at page 37, --

A I have it.

MR. HOROWITZ: I'm sorry. One second.

Rather than trying to work through, I think I have enough. Thank you. I have no further questions.

THE WITNESS: Fine.

COMMISSIONER LeBLANC: Thank you, Mr. Horowitz.

Next we will go Mr. Wells, Florida Gift Fruit

Shippers. Mr. Wells, before we get started, can you give me any idea how long you may be?

MR. WELLS: Probably about an hour.

CHAIRMAN GLEIMAN: And Mr. May?

MR. MAY: Perhaps under an hour.

CHAIRMAN GLEIMAN: And Mr. McKeever?

MR. McKEEVER: We do not anticipate any cross at this time.

CHAIRMAN GLEIMAN: Thank you.

Okay. Mr. Wells, we will go ahead and get started. Unfortunately, we will have to break shortly, but we will get you started anyway.

MR. WELLS: Thank you.

CROSS-EXAMINATION

BY MR. WELLS:

Q For the record, I am Maxwell Wells, appearing on behalf of Florida Gift Fruit Shippers Association. Ms. Eggleston, look at our Interrogatory T26-1.

A I have it.

Q And at the bottom of that response, you say it is your understanding. From whom did you obtain your understanding?

A Witness Smith calculates piggyback factors and it is my understanding that those piggyback factors are used to incorporate indirect costs.

Q And that was a conversation with Witness Smith?

A A conversation with Witness Smith, and also various conversations with other co-workers about what piggyback factors are used for and what is included.

Q And then you refer in there to a PSM piggyback factor.

A Yes.

Q Is that the factor that appears on page 5 of your Attachment P?

A I'm sorry, attachment what?

Q P as in Paul.

A P. That is one of the places it appears, it also appears in the Parcel Post, Attachment A.

Q And the factor that you use is the parcel sorting machine of 1.782?

A That is correct.

Q All right. And that is the factor for the cost of computer programmers, technical support and operators?

A It is my understanding that that is part -- those costs are part of the cost included in that piggyback factor. 1.782 is not the cost, it is a number we multiply times the costs.

Q I understand how that is. But you don't -- but the costs that are included in developing that piggyback is the labor cost that you have identified in your response

here, the computer programmers, technical support and operators?

A That is my understanding that they have been included in the parcel sorting machine piggyback factor.

Q Look, if you will, at page 2 of your Attachment P. And this is the cost pool for the BMCs and there it shows the cost for a BMC PSM of 13.552.

A Correct.

Q Where is that reflected?

A All of the costs in the cost pools in Attachment P are used to calculate the CRA adjustment factors. The proportional CRA adjustment factor and the fixed CRA adjustment factor. These are used to tie my average weighted model cost to the CRA. In these cost pools, piggyback factors are already included in these costs shown on page 2 of Attachment P.

Q The piggyback factors on page 5 are something more than labor?

A It includes indirect costs.

Q It includes the equipment costs that appear on page 2?

A Page 2?

Q Page 2 of Attachment P. Your --

A I'm sorry, I don't understand the question.

Q Your factor of 1.782 that appears on page 5.

A Yes.

Q Does that include the 13.552 cost for the PSM and the BMC that appears on page 2?

A That is backwards from what you have said. The 13.552 includes the piggyback factor.

Q Look, if you will, at page 8 of Attachment P.

A I have it.

Q There for the down under destination BMC, you show handling for primary PSM. You do not show a primary PSM at the origin BMC. Why not?

A Yes, I do.

Q Excuse me. I apologize. I see it up there now, you do. Your statement is that the cost pool on page 2 for the BMC PSM includes the factor that appears on page 5 of 1.782 for labor?

A That is my understanding.

Q Turn to your response to T26-2.

A I assume for FGFSA? I assume FGFSA?

Q Yes.

A T26-2.

Q Yes.

A I have it.

Q Do you concur that -- well, you say that distance is not directly related to zone. Would you explain what that means?

A In some instances, zone is not a good indicator of actual distance traveled by a parcel. My testimony separates costs into local, intermediate and long distance and does this for each of the three rate categories, inter-BMC, intra-BMC and DBMC. The one factor where -- for each of those, for local, intermediate, long distance, for each of the rate categories, I say whether the costs are related to -- whether costs are related to zone or not, which implies if cost distance is related to zone.

Because of the BMC network, that parcels go to one of the 21 BMCs and back, there is a sort of hub and spoke nature going on. So that even if I live right next to my neighbor and I send them a parcel, that parcel will have to travel to the BMC and then back to where I live. So that distance is a lot longer than you would think.

Q Well, I understand that is a matter of fact, but in an intra-BMC transportation network, as measured, the charges by zone is from the origin BMC -- origin SCF to the destination SCF?

A I am sorry, I didn't understand the question.

Q What determines the zone for an intra-BMC?

A What determines the zone is the 3 digit SCF origin and destination.

Q All right. And if the zone is a Zone 1 and 2, does it have the same or greater distance than a Zone 4?

A I can't answer that question because it depends on where the parcel originated and where it destinated. Zone is not necessarily an indicator of actual distance traveled.

Q Can you think of -- in an intra-BMC, the parcel would move from an origin SCF to the BMC and from the BMC to the destination SCF, is that correct?

A In an intra-BMC parcel, you are asking would it travel from the inter -- or origin SCF to the BMC to the destination SCF?

Q An intra-BMC, would the parcel move from the origin SCF to the BMC, and from the BMC to the destination SCF?

A In most cases, yes.

Q In some cases there may be a direct link between the two SCFs?

A It is my understanding in some cases there is a direct link between the SCFs. In some cases there is a direct link between the BMC and the Destination Delivery Unit.

Q Well, but the minimum distance that an intra-BMC would move is the zone difference between the origin and the destination SCF, is that right?

A I can agree with that, the minimum distance.

Q And if you were comparing a parcel that moved directly to a Zone 3 destination, would the distance be

greater or less than a parcel with a direct connection to a Zone 4 destination?

A On average, you cannot make that comparison just by zones. The distance traveled is, on average, about the same.

Q Well, is there a difference between -- or would you explain what the difference between a Zone 3 and a Zone 4 destinations?

A Zones are calculated based off the 3 digit origin SCF and the 3 digit destination SCF. Therefore, two SCFs can be right next to each other and can have a local or Zone 1, 2, but the parcel could still travel a long distance to the BMC and back, depending on the location of the SCF and the BMC.

Q But a zone is a mileage factor, is it not?

A Because the two SCFs, not the distance the parcel travels.

Q I understand. But the measure of the zone is the direct line from the origin to the destination SCF?

A It is my understanding that that is a general definition of it, yes.

Q And a parcel destined a Zone 2 would not have as much measured mileage as one to a Zone 4, would it?

A I don't agree with that.

Q Well, explain to me how a parcel --

A Oh, I am sorry. Measured mileage, measured by whom?

Q However you measure zones. How do you measure the mileage between zones?

A The measured mileage by zone is higher for each zone. The distance a parcel actually travels, and, therefore, the cost the parcel incurs does not necessarily increase with zone.

Q Very well. The distance that a parcel actually traveled, will it -- if it goes through the BMC, will it will be always greater than a direct from origin to destination?

A A parcel, you mean that goes from the SCF to the BMC to the SCF, compared to SCF to SCF?

Q A parcel moving in intra-BMC rate category, will the distance that parcel actually moves always be greater if it goes through the BMC than it would if the parcel were sent directly from the origin to the destination SCF?

A I don't believe I can confirm with the "always" in there.

Q Well, can you give me any example where the distance traveled by a parcel in intra-BMC could be the same or less than the direct distance between the two origin and destination facilities?

A I can give you a theoretical example. If an SCF

-- if two SCFs, if the BMC is directly in the line between the SCFs, then the transportation from one SCF to the other SCF would be the same as the transportation from the SCF to the BMC to the SCF.

Q All right. Can you think of any circumstance when the transportation would be less?

A Well, depending on our transportation routes, I am not an expert in the actual route the trucks travel, but often, just because we say we have transportation from an SCF to an SCF does not mean that parcel is going directly from the SCF to the SCF. The truck could make several other stops along the way that would not take that straight line distance. So it might be that there is actually less transportation mileage between the SCF, the BMC and the SCF. Then the parcel would travel from an SCF to the destination SCF.

Q Excuse me. Explain to me again how there could be less transportation?

A When I talked to you before about the same, having the same distance, I assumed that the truck was traveling directly from the origin SCF to the destination SCF in a straight line.

Q Through the BMC?

A Well, either way. I was assuming that transportation was direct, straight line transportation. In

reality, I believe trucks make several stops and do not travel in a straight line. They can -- one truck might stop at several SCFs, so you might picture a truck -- I will try to think of an example, going from, say, Baltimore to D.C. They might not come straight from Baltimore down 95 to D.C. It might go off of 95 and go 10 miles out of its way to drop off a parcel, and then go another 20 miles to drop off some parcels at a plant, and eventually make its way to D.C.

Q So that the actual transportation would be more?

A Yes. Theoretically, yes.

Q Can you give me any -- you gave me an example of when the transportation on direct link would be the same if it went through a BMC. Is there any example of how the transportation through a BMC can be less than a direct route?

A That is what I was trying to answer. I was saying that a truck going from one plant to another could actually take many, you could call them detours or side trips, and then that transportation, the distance traveled would actually be greater than the distance between the origin SCF, the BMC, the destination SCF.

Q And my question, is there any example where the transportation service is less?

A I believe I just answered that question.

Q I differ with you. You have not answered the

question. You have answered me how it could be the same and how it could be more.

A Let me just reword then. You are asking when the transportation from the SCF to the BMC to the destination SCF can be less than the transportation from the origin SCF to the destination SCF?

Q No, my question is, the distance on a direct link between the origin and destination SCF, the zone difference, can be less than the actual transportation from origin to BMC to destination?

A You used two different terms there, you used zone mileage, and then I believe in the second, the SCF to the BMC to the SCF, I got actual distance traveled. So I am not sure what you want me to compare.

Q Well, from origin to destination, the mileage is determined by zone mileage, is it not?

A Zones are -- zone is calculated as the distance between the origin and the destination SCF.

Q And I am asking you, is there any circumstance when the zone mileage from origin to destination can be less than the actual mileage from origin to the BMC to the destination?

A Yes.

Q And would you provide that explanation, please?

A If two plants are right next to each other, the

zone would be relatively small. However, if the parcel travels from the origin SCF to the BMC, back to the destination SCF, if the two plants are right next to each other, it almost has to travel a larger distance than the zone.

Q Let me try it one more time. If you have a parcel from origin to destination which is measured by Zone 4 --

A Okay.

Q -- can the actual mileage --

A Actual miles travelled?

Q From the actual miles travelled, from the origin to the BMC to destination ever be less than the direct --

A Oh, than the zone?

Q Yes.

A As the zone calculates it?

Q Yes.

A No, I don't believe so.

CHAIRMAN GLEIMAN: Mr. Wells, if you are done with that particular set of questions, I think we would like to take a break now for lunch. We have some business we have got to attend to.

MR. WELLS: Very well.

CHAIRMAN GLEIMAN: We will come back at 1:30 and we will pick up, and I apologize for interrupting you.

MR. WELLS: No problem.

[Whereupon, at 12:28 p.m., the hearing was recessed, to reconvene at 1:30 p.m., this same day.]

AFTERNOON SESSION

[1:40 p.m.]

CHAIRMAN GLEIMAN: Mr. Wells, when last we met you were gracious enough to let us interrupt you so that we could eat lunch and do battle on another issue unrelated to what is going on in the hearing room today, but we're back, and if you are prepared to continue at this point, the witness and Postal Service counsel look like they are, you may proceed.

MR. WELLS: Thank you, Mr. Chairman.

Whereupon,

JENNIFER L. EGGLESTON,

the witness on the stand at the time of the recess, having been previously duly sworn, was further examined and testified as follows:

CROSS EXAMINATION[resuming]

BY MR. WELLS:

Q Ms. Eggleston, turn if you will to FGFSA Interrogatory Number 3.

A I've got it.

Q There the assumption is if you have two identical parcels, one intra-BMC and the other DBMC that are transported intra-BMC through the BMC and for DBMC from the BMC to the same SCF, under your determination of the average cost per cubic foot, explain how the transportation costs

for each parcel can be different.

A My testimony cannot be used to estimate the cost of individual parcels, so in the example you gave, two parcels travelling from the BMC to the SCF, one being a DBMC parcel and one being an inter-BMC parcel, it is very possible that they incur the same costs from the BMC to the SCF.

What my testimony does is estimate the average cost per cubic foot for inter, intra and DBMC, and what I am saying is that on average DBMC parcels on that leg, BMC to SCF, incur more costs as zone increases and inter-BMC parcels do not.

Q You say intra is greater than DBMC, the cost of intra-BMC parcels is greater than DBMC parcels?

A The overall cost per cubic foot?

Q Yes.

A The overall cost per cubic foot for inter-BMC is greater than for DBMC except for in Zone 5.

Q Why would it be different in Zone 4 and 5?

A It's just Zone 5 -- I looked into this because we thought it looked anomalous and it is because Zone 5 DBMC parcels, it's my understanding that these are military parcels that are being sent to Panama Canal.

Q What about intra-BMC Zone 5 parcels?

A I didn't look into those because those costs don't

seem to be anomalous compared to the rest of intra-BMC costs.

Q Well, then a Zone 3 for DBMC parcels is measured from the BMC?

A I'm sorry, what is measured?

Q Is the zone distance for zone rated DBMC parcel to Zone 3 measured from the BMC?

A I am not sure if it is measured from the BMC or from the origin SCF.

Q Well, the DBMC parcel originates at the BMC, doesn't it?

A Correct.

Q So there is not an origin SCF.

A Correct -- so, yes, I believe it would be measured from the destination BMC.

Q And is the distance for a DBMC Zone 3 parcel the same distance as the distance for an intra-BMC?

A On average, not necessarily.

Q How could it be different?

A The actual distance travelled is not necessarily --

Q I didn't ask you about the actual distance --

A The zone, yes, would be the same.

Q A Zone 3 intra-BMC would be the same distance as a Zone 3 DBMC?

A Yes -- within that range of --

Q But the actual mileage for an intra-BMC Zone 3 parcel would be greater than the actual mileage on a DBMC parcel?

A Not necessarily.

Q Well, under what circumstances would it not be?

A If you talk about intra-BMC parcel, say an intra-BMC parcel here where we have BMC very close to where we live, the distance travelled by that parcel to the Washington BMC and back isn't very far. Then if you look at in the Western area of the country where there is a great distance between BMCs and how much of a service area they cover a parcel could be dropped off at the Dallas BMC and travel a quite far distance, much longer than a parcel dropped off here at the SCF.

Q Perhaps you misunderstood my question. The actual mileage for a Zone 3 intra-BMC parcel is always greater than the actual mileage for a DBMC parcel to Zone 3?

A Actual miles travelled?

Q Actual miles travelled.

[Pause.]

THE WITNESS: No, I don't agree.

BY MR. WELLS:

Q Well, under what circumstances would the actual miles travelled for an intra-BMC Zone 3 parcel be less than

the actual mileage of a Zone 3 DBMC parcel?

A I would refer back to the example I just gave. I can't think of particular examples of where Zone 3 -- but I would still think that Zone 3 parcels cover between 150 and 300 miles, so the intra-SCF, the intra parcel could travel close to the 100 -- well, they could be 150 miles apart and the parcel could only travel, say, 200 miles, where a DBMC parcel could be 300 miles from the SCF.

Q Well, let me clarify the question. If we have two parcels to the same destination SCF, one parcel moving in intra-BMC rates to Zone 3, and the other moving in DBMC rates to Zone 3, can there ever be a situation where the intra-BMC actual mileage is less than the actual mileage of the DBMC?

A And are you talking about travelling from the exact same destination BMC to the exact same destination SCF?

Q Through -- the intra-BMC parcel goes through the same BMC that the destination BMC is entered at.

A As we talked about earlier, there are parcels that travel directly from an SCF to an SCF. Those parcels could be intra-BMC parcels, so there could be instances where that parcel travels less than the DBMC parcel.

Q Zone 3 either from the origin SCF or from a DBMC is the same mileage, isn't it?

A Well, it is a range of miles, 150 to 300.

Q What mileage do you use in your work papers?

A I don't have to use -- I use cubic foot miles actually incurred for distance-related transportation.

Q Let me further clarify the question then.

Where there is an intra-BMC parcel that is handled through the BMC to a destination SCF, which is Zone 3 from the origin, is there any circumstances under which the actual mileage for that intra-BMC parcel would be less than the actual mileage of DBMC parcel from the same DMC to the same SCF destination?

A Yes. In the example I gave, the origin SCF could be 150 miles from the destination SCF and that parcel could receive direct transportation between them.

The BMC could be 300 miles from the destination SCF and so that parcel would travel 300 miles, and they both would be Zone 3 parcels.

Q How in your calculation do you determine the actual knowledge utilized in determining that -- excuse me -- the calculated milage in determining a parcel zone, to Zone 3, from an SCF to an SCF?

A Actually, I do not account for in my model, the instances where parcels travel directly from an SCF to an SCF.

Q Well, how do you determine the zone mileage?

A I get my cubic foot miles from Library Reference 105.

Q Very well. In my Interrogatory Number 3, where the two parcels travel on the same vehicle from the same BMC to the same SCF, the transportation service for the intra-BMC is greater; is that correct?

A It depends on if you're talking about total transportation, or if you're talking about just the transportation costs from the BMC to the SCF.

Q The total transportation of the intra-BMC parcel will be greater than the total transportation costs for the DBMC parcel under those circumstances; wouldn't it?

A I would imagine there still would be instances where that wouldn't hold true, but probably most likely, if you assume the inter-BMC parcel was entered before the BMC and not entered at the delivery unit or the plant, and they went to the same SCF, most likely in that specific instance, the intra-BMC parcel would cost more than the DBMC parcel.

Q And it would receive more transportation service?

A Yes.

Q Turn, if you would, to your Attachment K?

A I've got it.

Q Explain to me what the B and C are.

A Do you mean right to the left of the inter-BMC?

Q Well, you say A plus B, and B is LM (LBS).

A The A, B, and C are the coefficients estimated by the regression equation.

A is the actual intercept and B and C are -- they are coefficients on the independent variables.

Q All right.

MR. WELLS: Mr. Chairman, I believe that's all I have of this witness at this time.

CHAIRMAN GLEIMAN: Thank you, Mr. Wells. Parcel Shippers Association?

CROSS EXAMINATION

BY MR. MAY:

Q Ms. Eggleston, I am Tim May for Parcel Shippers. I just want to examine you about two aspects of your testimony and your responses.

The first is your testimony with respect to oversized parcels in Standard B Parcel Post. Those would be parcels whose length and girth combined range between 108 inches and 130 inches, correct?

A Correct.

Q Would you direct your attention to your response to our -- to the interrogatory of United Parcel Service, T-26-7?

In the first part of that response, you confirmed that your corrected costs for oversized parcels, as a result of the errata you filed to your testimony, which reduced the

average cube in oversized parcels from 10.84 cubic feet to 8.04 cubic feet, had the effect of causing a 22- to 25-percent reduction in the average costs of oversized parcels.

Excuse me, I think I misspoke. It's the Parcels Shippers, not UPS.

A I figured it out, thank you.

Q Gee, that is a terrible Freudian slip.

[Laughter.]

BY MR. MAY:

Q Excuse me. Yes, that's Parcel Shippers 26-7.

A I've got it.

Q And you there confirm that the reduction in the cubic feet, your average cubic feet, had the effect of causing a 22- to 25-percent reduction in the average cost of oversized parcels, correct?

A Correct.

Q And in Part (b) of that response, you confirm that the cost for oversized parcels that would result if the cube were five cubic feet instead of 8.04 cubic feet, shows further reductions in the cost of oversized parcels on that assumption; isn't that correct?

A Correct.

Q Now, would you please confirm that those reduced costs are effectively less than half of the original

estimates of the costs of oversized parcels?

A I don't have the original estimates with me.

Q Well, it's 10.84 that was the original -- the original cost, excuse me. All right.

A Are you talking about half of the cube, or half of the cost?

Q I'm talking about that the reduction in the cube --

A Oh, correct.

Q -- would have -- in the approximate range, had the effect of cutting the cost, your estimated costs in half by doing that.

A I can accept that, subject to check, but I don't remember what my original cost estimates were.

Q So that, indeed, the cube is all important. What one assumes the cube to be of oversized parcels, is all important in what their costs are; is it not?

A It's important in how I have my models structured. Because we came out with such a large average cube, having cube as the cost driver was very acceptable.

If I had figured out that these oversized parcels were mainly small cube parcels, which would mean they'd have to be the big, long, thin parcels, they don't have a large cube, but they take up a lot of space.

I would have -- I would have changed the cost

model then to incorporate how difficult it is to handle those parcels.

Q Okay. Now, I had furnished to you yesterday, and to your counsel, PSA's cross examination Exhibit Number 1. You have a copy, I believe?

A Yes, I do.

MR. MAY: And just for the convenience of the Bench, I will furnish a copy to the Bench.

I have given to the reporter two copies of the cross-examination exhibit marked for identification as PSA-XE-1.

[Cross-Examination Exhibit No. Eggleston-PSA-XE-1 was marked for identification.]

BY MR. MAY:

Q Now, Ms. Eggleston, this exhibit which you have had an opportunity to examine is simply the mathematical formulations for determining what could be the largest cube as well as the smallest cube of a parcel that has length and girth dimensions between 108 inches and 130 inches, is that correct?

A Yes, it is, except the minimum parcel cube was risk constrained to reasonable dimensions, and that is a subjective.

Q Right. Yes. I mean because at some point it goes

toward infinity what the smallest might be.

A Yes.

Q So, in order to have something to work with, we have constrained it so that in no event -- we get it to around one cubic feet, is that correct?

A The minimal parcel calculation with your restraints is about one cubic foot, yes.

Q And the maximum is 11.77 cubic feet, isn't that correct?

A Yes.

Q And you do accept the correctness of the math calculations?

A I accept the math. In Number 10, the equation written out is wrong, you just have maximum cube as W times L, where it should be WW times L or W squared times L. But the calculation you did is actually right.

Q Thank you. And so if the record will reflect the correction in line 10 of the exhibit, the formula is WW times L, instead of WL. I will blame this on my typist.

Now, with the -- according to this exhibit, which you agree, it is the case that the Postal Service's corrected average -- well, corrected average cube of 8.04 cubic foot is only 32 percent less than the maximum of 11.77 cubic feet, roughly?

A I will accept that subject to check.

Q Okay. Thank you. Whereas, your average cubic feet is 800 percent greater than the constrained minimum, which is a little over one cubic feet?

A Yeah. The constrained minimum with your subjective pick of reasonable dimensions.

Q So your average cubic feet is well up in the very high range of the potential from the smallest to the largest, is it not?

A Well, from the mathematical equations of it, I would imagine that it is much more unique to have a long thin parcel than it is to have a parcel that has a more rectangular normal shape to it.

Q Now, would you direct your attention to your answer to PSA's 26-4(c) and (d)?

A I have it.

Q Now, in that response you have provided a table which, among other things, relates what the sample size was for the oversize parcels from which you derived your estimate of an average of 8.0 cubic feet, is that correct?

A Correct.

Q Now, would you please tell us for the record, based on that response, how many actual parcels were in the sample, your total sample that you took to arrive at your average?

A It would be the total of 47 plus 12 plus 5, so,

64.

Q And the intra-BMC sample, you had five parcels?

A Correct.

Q Do you really believe that we should rely on data derived from a sample size which in total was 64 parcels and in one stratum had as few as five?

A Yes, actually, I do. The reason for the small sample size was the fact that these parcels were only introduced in January 10th, 1999. So the small sample size is actually showing the small amount of volume that we get. And since it is real data versus estimated data, I think it makes sense to use it, especially because the 8.04 is so close to the 8.19 we calculated in R97 with a regression.

Q But do you know of any -- I mean, well, what is the total volume oversize parcels, do you know that?

A In PQ3 of FY '99, from which this sample is taken, the oversize volume was 84,245.

Q And that is just one fiscal quarter, right, PQ3?

A It is PQ3 FY '99.

Q Right.

A Which is all we had at the time we prepared this cost study.

Q And, so, certainly, the annual volume is at least three times that, or perhaps four times that amount, isn't it?

A There might be some seasonality with oversize. It would be greater, I don't know how much larger.

Q And, so, your 46 -- or, excuse me, your 47 parcels, your 12 parcels and your 5 parcels is really a very, very small portion of what is also a small volume, isn't it?

A I believe, though, it is the same portion we used for sampling for the RPW system for all types of mail.

Q And that means the same proportions?

A The same proportion of sample to total.

Q Would you believe that a sample that sampled 1 million of a billion pieces would give you a far more reliable estimate than a sample that tested 10 out of 100,000?

A It would always be more optimal to have a greater sample size. However, in the absence of other data, this is the best data we have available.

Q Well, I mean what other data did you take? Did you go ask any of the people who were mailing this stuff what they have?

A We actually considered doing that, but due to the small volume of mail, the cost of doing that would be fairly burdensome, especially with the fact that this stuff, these oversize parcels are very seasonal. There is fishing poles and there is bushes and there is trees which come out

different seasons. So, to do an accurate sampling method beyond the RPW system, we would have to use -- go over many seasons, and with time and budget constraints, that just was not possible.

Q If I made a phone call to one of my members who is a major user of this, that would be expensive?

A I would not believe that would be statistically reliable.

Q Well, but I put it to you that your sample of 64 parcels is also not statistically reliable because it is so small.

A It is much more random in nature, though, so you are out weighing two different things.

Q Wouldn't it have, just to kind of check the results when you have such a ridiculously thin sample, be to check your results with the real world, that is, somebody who is actually mailing these parcels?

A Not in this particular case because of seasonality. We could call a mailer and they could tell us their cube is around 2, because they are mailing fishing poles that month. We could call them next month and they could be mailing bushes. So there is no way to collect real world data that I thought was statistically significant.

Q Well, without actually talking to a few people who actually make these mailings, do you have any idea how many

people?

A No, I do not.

Q Now, in your reply to Parcel Shippers 26-6(i), there you supplied the information that your average oversized cubic of 8.04. In that answer you also supply the information that the 95 percent confidence interval ranges from 6.55 to 9.53, correct?

A Correct.

Q This means, does it not, that if I want to have a 95 percent chance of including the true value of the average oversize cubic feet, that I need to consider possible values over this entire range, that is, from 6.55 cubic feet to 9.53 cubic feet?

A That is the statistical definition of that answer, yes.

Q So if I want to have a 95 percent chance of including what the actual value is, I can't rule out the possibility that the true average is 7, can I?

A Statistically -- statistically, yeah, the definition is saying that the true value is between those two numbers, 6.5 and 9.53.

Q Thank you. Now, I would like to switch to a different subject if we may, and that is your modeled costs for the DDU and DSCF Parcel Post discounts, if we may. And I would like you to look to your response to Parcel Shippers

26-1(a).

A I have it.

Q Would you confirm that Witness Yacobucci and Witness Miller did make CRA adjustments to the mail processing costs that they modeled?

A I believe they did.

Q I think you confirmed that in your answer, isn't that right?

A Yes.

Q Now, would you please confirm that the proportional CRA adjustment factor for the Parcel Post subclass is 1.154?

A That is the proportional CRA adjustment factor for my mail processing models in Attachment A.

Q Now, would you just, for the record, explain briefly to the Commission why you apply a CRA adjustment factor?

A For established rate categories, we apply a CRA adjustment factor to account for variances in the inputs. What that means is we tie our modeled costs to the CRA, the exact same cost pools that we try to model, and we use that proportion of what actually is shown in the CRA to the average weighted modeled cost, and we come up with a proportional CRA adjustment factor.

Q So normally in your modeling when you get a

modeled cost, for instance, if it is a parcel, post costs, you then would multiply that cost by 1.154 so that it would conform to the CRA, is that correct?

A For well-established rate categories, yes.

Q Thank you. Now would you confirm that in response to CSA, not PSA but CSA-T26-9(a). You stated that, quote, "Not using some sort of CRA adjustment factors in the estimated mail processing costs would severely underestimate costs."

A That is confirmed. There are two different things going on here. For CSA I was modeling a bottoms-up cost, so I was trying to make sure I didn't understate costs so the Postal Service didn't lose money.

For the DDU and DSCF rate I am modeling costs avoided, so I'm modeling the cost that is going to go into the cost savings, so I am being more cautious not to overmodel cost savings, so I don't want to use a CSA adjustment factor there.

Q Are you saying that if you do not -- you did say, quote, "not using some sort of CRA adjustment factors in the estimated mail processing costs would severely under-estimate costs."

You don't disagree now with your answer, do you?

A No, that's not what I said --

Q I quoted you. That is a quote.

A No, no, no -- I mean you took my answer wrong then.

Q I mean you did say that.

A For bottoms-up mail processing, not using a CRA adjustment factor would understate mail processing costs.

Q Yes, and I am not asking you for what purpose you are using this. I am just asking if you fail to use a CRA adjustment to your model costs you are going to underestimate costs, are you not?

A For bottoms-up costing, yes.

Q Period. You are going to underestimate costs.

A No -- not period.

Q And they will not conform to your CRA model, will they?

A For bottoms-up costing, no.

Q Explain that.

A For bottoms-up costing, I am starting from zero and I am calculating total cost.

The biggest factor in there is the fixed CRA adjustment factor. I am adding 21 cents to ~~BRSP~~ BPRS for a fixed CRA adjustment factor which this question refers to.

For DDU and DSCF I am calculating cost avoidance --

Q I haven't asked you anything about cost avoidance yet. I have simply asked you to confirm for the record that

it is the case if one is estimating costs, not cost avoidance, if you are estimating costs and you fail -- as you say -- you testify here -- is if you fail to make a CRA adjustment you will seriously underestimate costs.

Isn't that the case?

A For bottoms-up costing, yes.

Q I am talking about costing. I am not talking about cost avoidance now. That's costing.

A For bottoms-up costing I need to use a CRA adjustment --

Q Yes, and cost avoidance is an effort to try to find out how much cost something avoids, not how much cost is incurred, isn't that correct?

A Correct.

Q So my question to you was in trying to find out how much cost is incurred for a service you must make a CRA adjustment or you will underestimate those costs.

A Correct.

Q All right. Now if one underestimates cost for two rate categories by the same proportion, would you confirm that the cost savings will also be underestimated by the same proportion?

I mean if Function X costs six cents and you have underestimated that cost because you haven't made an adjustment and said it only costs 5 cents, then when you

avoid the cost of that function, isn't it also true you will underestimate the costs that are avoided because you will have believed that it only costs 5 cents when in fact it costs 6 cents?

Isn't that necessarily the case?

A I would say your cost savings calculation would be lower than if you used the proportional CRA adjustment factor.

Q Thank you. Now would you confirm that bulk parcel return service, which you have been talking about and testified this morning is not a, quote, "well established category"?

A It is a new rate category in the last two years, yes.

Q Is it any older than DDU and DSCF?

A Yes.

Q It is?

A Yes.

Q The ~~BSPRS~~ BRPS?

A BPRS was introduced in October '97.

Q And when did you introduced the DDU and DSCF?

A January 10th, 1999.

Q Now when did you propose it?

A When did the Postal Service propose it?

Q Yes.

A In Docket Number R97-1.

Q Which was in 199 -- when?

A I have to think back. I wasn't even here yet.

Q Well, it wasn't long after the BPRS, right? I am just trying to determine what you regard as a, quote, "well established category of mail."

A Well -- and again I have to correct you in that the use of the CRA adjustment factor in the two cases is completely different. One is a bottoms-up costing --

Q Well, I haven't asked you --

A -- and one is a cost savings.

Q Excuse me, I have not asked you a question about that at all. I have simply tried, I just asked you what you regard as a well established rate category, well established category and I asked you is BPRS a well established category, what you call a well established category?

A I would say that BPRS and the new drop ship discounts are both fairly new rate categories.

Q Now I believe in your response to Parcel Shippers 26-I(h) you stated that the CRA adjustment factors are only appropriate for well established categories, explaining I take it why you did not apply a CRA adjustment factor to the DDU and DSCF, because you feel they are not well established categories, is that correct?

A Yes, that is correct.

Q But you did -- I think you were going to then go on, you wanted to explain to us why you apply a CRA adjustment factor to BPRS and not to the DDU and DSCF even though none of them in your lexicon are well established categories.

Now you wanted to explain why you do one and not the other. Please do so.

A BPRS is bottoms-up cost study. I am estimating each cost component separately and I am building the costs from the bottom, so to not use a CRA adjustment factor would mean I am not -- I know my modeled cost, I know my modeled mail processing cost does not include everything. I don't even model the origin delivery unit.

I don't model what happens after dumping and unloading things at the Destination Delivery Unit. I know I am missing stuff so I know I have to add something back in there.

For the DDU and DSCF I am estimating cost savings, so I am estimating what we think is happening. Since we do not have a lot of data on what is happening we want to be cautious that we don't overstate those savings and give mailers the wrong price incentive because my costing goes into pricing, so we are very cautious by not applying a CRA adjustment factor in the first few years it is introduced.

Q Now would you confirm that Witness Plunkett used

the cost savings estimates you developed for DDU and DSCF in his development of preliminary Parcel Post rates?

A It is my understanding that he uses my cost estimates in his rate design.

Q And would you confirm that Witness Daniel performed a final adjustment to test year after rates Parcel Post costs of $40.6 million and that she used your models to develop this final adjustment? I can give you the reference in her testimony.

A I don't know the total. I can accept that subject to check, but I do know she used my models in her final adjustments.

Q Just for the convenience in the record that is on her testimony, T28, at page 33, Table 8. She also has an explanation on page 34.

Now in the model used by Witness Daniel, your model, the DDU and DSCF mail processing cost savings were not adjusted using the CRA adjustment factor, were they?

Well, you didn't do that in your own model and they used your model.

A Correct.

Q How much larger would the final adjustment have been if the model had used DDU and DSCF cost savings that had been multiplied by the Parcel Post proportion of CRA adjustment?

A I can't answer that because the DSCF and DDU were not in the Parcel Post mail processing models. They were not in the calculations of the CRA adjustment factor, so I don't know what adjustment factor I would use.

MR. MAY: Could I ask that that be submitted for the record, Mr. Chairman?

CHAIRMAN GLEIMAN: You certainly may.

THE WITNESS: I'm sorry? What is --

MR. MAY: Yes, I am asking that that be submitted for the record and not necessarily by you. I don't care who provides the information.

THE WITNESS: It cannot be done.

MR. MAY: Why not?

THE WITNESS: Because the base year is '98 and those rate categories do not exist in '98.

MR. MAY: Yes.

THE WITNESS: They cannot be put in the '98 model if they don't exist.

BY MR. MAY:

Q Well, my question was what would the difference have been had your model applied the CRA adjustment factor. If the CRA adjustment factor had been applied to your model costs then --

A I don't know what the appropriate CRA adjustment factor would be.

Q Well, why would it not be the one that we are using for all of Parcel Post?

A If I were asked to apply a CRA adjustment factor, I don't know what CRA adjustment factor I would use. I would have to think about that, because the reason why it is appropriate to use the one in Attachment A is because we are applying it to the models modeled in Attachment A and they are all weighted together to come up with the weighted average cost, which helps to calculate the CRA adjustment factor.

Q Is there any other adjustment factor that you have used for any part of Parcel Post except the 1.154 adjustment factor, you or anybody else at the Postal Service?

A No.

Q Then why would it not be the appropriate adjustment factor to use for DDU and DSCF?

A It might be. It just wasn't asked of me, so I haven't studied it.

MR. MAY: Well, that clinched it, Mr. Chairman.

Will the Postal Service supply what the rates would have been had the 1.154 adjustment factor been applied to her model costs? And they can, if they like, denounce the whole thing and say they would never do that. I would just like to know for the record what that would have been because in fact the Commission for example might believe

that it should have been done.

CHAIRMAN GLEIMAN: Well, I don't know what the Commission would think or not think but certainly I can understand your interest in seeing it and if the Postal Service would be so kind as to do that calculation and provide it within a week, I would appreciate it and I am sure that Mr. May would also.

MR. MAY: Yes.

MR. REITER: I just want to make sure before get an answer that it is something we can do, but we will look into it and if it is not we will certainly let you know that.

CHAIRMAN GLEIMAN: Okay.

MR. MAY: Thank you.

CHAIRMAN GLEIMAN: Mr. Reiter, you have some redirect, I take it?

MR. REITER: No, we have no questions, Mr. Chairman.

CHAIRMAN GLEIMAN: But do you have redirect?

[Laughter.]

MR. REITER: May I think about that?

CHAIRMAN GLEIMAN: I would have done it the other way around, probably have no redirect, but lots of questions.

[Laughter.]

CHAIRMAN GLEIMAN: Mr. May?

MR. MAY: Yes, just one clarification for the record, because counsel at the break wanted to be sure that he understood what my request was, as to whether it was cost or rates.

And to be precise, what I wanted, what I asked was -- and I'm not asking this witness, necessarily to provide that -- but my question was, how much larger would the final adjustment, that is, the adjustment made by Witness Daniel, have been if the model that she used for DDU and DSCF cost savings, if that had been multiplied by the CRA adjustment?

My question is, how much larger would Witness Daniel's adjustment then be, had that model cost been multiplied. Does that help?

MR. REITER: That does help.

MR. MAY: Thank you.

MR. REITER: And we will get you an answer.

MR. MAY: Thank you.

CHAIRMAN GLEIMAN: Well, thank you both for clarifying things for the record, so that we can get a good response and timely response.

Inasmuch as there was no redirect, it appears, Ms. Eggleston, that that completes your testimony here today. We appreciate your appearance and contributions to the record.

We thank you, and you are excused.

[Witness Eggleston excused.]

CHAIRMAN GLEIMAN: Before you call your next witness, Mr. Reiter, I just want to make an announcement:

On Tuesday, Magazine Publishers of America requested that the appearance of Witnesses Baron and Raymond be postponed by one week, from Tuesday, May the 2nd to Tuesday, May the 9th.

Advo Systems filed a motion in support of this request, or notice or something or other in support of the MPA request. The Postal Service has indicated that it does not oppose the request, and a ruling granting the request will be issued this afternoon, if we can make it to our Docket Room before it closes.

In any event, the reason I wanted to announce this is that I wanted folks who had designated written cross examination to know that for those two witnesses, Baron and Raymond, that they need not file that material today.

So, everybody out there who's listening -- yes, sir?

MR. McKEEVER: Mr. Chairman, may I ask clarification on one point? My recollection of the MPA motion was that they asked first that the appearances of the witnesses be postponed, and also that the date for the filing of their testimony in rebuttal to those witnesses be

postponed.

Will there be a ruling on that at this time, or not? And the reason I ask is -- well, go ahead. I'm sorry.

CHAIRMAN GLEIMAN: I believe we'll try and handle it all.

MR. McKEEVER: Okay, we will be filing today, I believe, if it's not already filed, a response to the motion which takes no position on it, but does request that if the deadline for MPA's rebuttal testimony on that subject be postponed, then that the date for all parties who would want to file rebuttal testimony to those witnesses also be postponed.

CHAIRMAN GLEIMAN: Well, certainly, if we do it for one party, we're going to do it for all.

MR. McKEEVER: Thank you, Mr. Chairman.

CHAIRMAN GLEIMAN: Anyone else?

[No response.]

CHAIRMAN GLEIMAN: No? Mr. Reiter, would you like to call your next witness?

MR. REITER: Our next witness is James Kiefer.

CHAIRMAN GLEIMAN: Mr. Reiter?

Whereupon,

JAMES M. KIEFER,

a witness, having been called for examination, and, having been first duly sworn, was examined and testified as

follows:

DIRECT EXAMINATION

BY MR. REITER:

Q Mr. Kiefer, I'm handing you two copies of a document entitled Direct Testimony of James M. Kiefer on Behalf of the United States Postal Service, designated USPS-T-37.

[Pause.]

Was this testimony prepared by you or under your direction?

A It was.

Q And if you were to testify here orally today, would your testimony be the same?

A Yes, it would.

MR. REITER: Mr. Chairman, I will hand these copies to the Reporter, and ask that they be entered into the record as the Direct Testimony of James Kiefer.

CHAIRMAN GLEIMAN: Is there any objection?

[No response.]

CHAIRMAN GLEIMAN: Hearing none, I will direct counsel to provide the Reporter with copies of the Direct Testimony of Witness Kiefer, and that testimony is received into evidence but will not be transcribed into the record.

[Direct Testimony of James M. Kiefer, USPS-T-37 was received into

evidence.]

CHAIRMAN GLEIMAN: Do we have any Category II Library References at issue with this witness?

MR. REITER: I promise that's the last time today I won't have that sheet with me.

Library Reference 11, Mr. Chairman.

CHAIRMAN GLEIMAN: We'll admit Library Reference 11 into evidence, but not transcribe it into the record.

[Library Reference Number 11 was received into evidence.]

CHAIRMAN GLEIMAN: Mr. Kiefer, have you had an opportunity to examine the packet of Designated Written Cross that was made available to you earlier today?

THE WITNESS: Yes, I have.

CHAIRMAN GLEIMAN: And if those questions were asked of you today, would your answers be the same as those you previously provided in writing?

THE WITNESS: Yes, they would. There is one thing I would note; that the packet that was supplied earlier today did not contain an update which we filed yesterday. The sole update was a revision to the AAP/USPS-T-37-7, Question 7 for AAP.

The purpose of that update was to reflect in the attachment and in the response itself, changes in some of the numbers that were occasioned by the revised filing of

Attachment H, Table 1, to the testimony of Witness Crum, which was USPS-T-27. That was revised on April 14th.

So there were a few very minor changes in the numbers in the Attachment to Response 7, and also had a minor change in one of the numbers in Part (a) of the response.

CHAIRMAN GLEIMAN: And that update was included in the packet?

THE WITNESS: In these two copies of the packet.

CHAIRMAN GLEIMAN: Thank you, Mr. Kiefer. Counsel, if you'd please provide the copies to the Court Reporter, I'll direct that the material be received into evidence and transcribed into the record.

[Designated Written Cross Examination of James M. Kiefer was received into evidence and transcribed into the record.]

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, DC 20268-0001

Postal Rate and Fee Changes, 2000 Docket No. R2000-1

DESIGNATION OF WRITTEN CROSS-EXAMINATION
OF UNITED STATES POSTAL SERVICE
WITNESS JAMES M. KIEFER
(USPS-T-37)

Party	Interrogatories
American Library Association	AAP/USPS-T37-1-18, 22, 23a-b, 24 ALA/USPS-T37-2 UPS/USPS-T37-1
Association of American Publishers	AAP/USPS-T37-4-7, 10-13, 15-22, 23a-b, 24
Office of the Consumer Advocate	DBP/USPS-66 redirected to T37

Respectfully submitted,

Margaret P. Crenshaw

Margaret P. Crenshaw
Secretary

INTERROGATORY RESPONSES OF
UNITED STATES POSTAL SERVICE
WITNESS JAMES M. KIEFER (T-37)
DESIGNATED AS WRITTEN CROSS-EXAMINATION

Interrogatory:	Designating Parties:
AAP/USPS-T37-1	ALA
AAP/USPS-T37-2	ALA
AAP/USPS-T37-3	ALA
AAP/USPS-T37-4	AAP, ALA
AAP/USPS-T37-5	AAP, ALA
AAP/USPS-T37-6	AAP, ALA
AAP/USPS-T37-7	AAP, ALA
AAP/USPS-T37-8	ALA
AAP/USPS-T37-9	ALA
AAP/USPS-T37-10	AAP, ALA
AAP/USPS-T37-11	AAP, ALA
AAP/USPS-T37-12	AAP, ALA
AAP/USPS-T37-13	AAP, ALA
AAP/USPS-T37-14	ALA
AAP/USPS-T37-15	AAP, ALA
AAP/USPS-T37-16	AAP, ALA
AAP/USPS-T37-17	AAP, ALA
AAP/USPS-T37-18	AAP, ALA
AAP/USPS-T37-19	AAP
AAP/USPS-T37-20	AAP
AAP/USPS-T37-21	AAP
AAP/USPS-T37-22	AAP, ALA
AAP/USPS-T37-23a	AAP, ALA
AAP/USPS-T37-23b	AAP, ALA
AAP/USPS-T37-24	AAP, ALA
ALA/USPS-T37-2	ALA
DBP/USPS-66 redirected to T37	OCA
UPS/USPS-T37-1	ALA

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS KIEFER TO INTERROGATORIES OF ASSOCIATION OF AMERICAN PUBLISHERS

AAP/USPS-T37-1 Please provide all underlying data used to prepare Figure 5 that appears at on page 29 of your testimony.

RESPONSE

Please see Attachment to the response to AAP/USPS-T37-1.

Attachment
AAP/USPS-T37-1

Mid Year	Rate for 1-Pound Parcel			Rate for 3.5-Pound Parcel		
	Local	Zones 1&2	Zone 6	Local	Zones 1&2	Zone 6
1971	0.28	0.34	0.38	0.32	0.4	0.55
1972	0.28	0.34	0.38	0.32	0.4	0.55
1973	0.28	0.34	0.38	0.32	0.4	0.55
1974	0.34	0.41	0.46	0.39	0.49	0.65
1975	0.34	0.41	0.46	0.39	0.49	0.65
1976	0.52	0.62	0.7	0.59	0.74	0.99
1977	0.52	0.62	0.7	0.59	0.74	0.99
1978	0.69	0.92	1.02	0.69	0.94	1.31
1979	0.69	0.92	1.02	0.69	0.94	1.31
1980	0.69	0.92	1.02	0.69	0.94	1.31
1981	0.69	0.92	1.02	0.69	0.94	1.31
1982	0.69	0.92	1.02	0.69	0.94	1.31
1983	0.69	0.92	1.02	0.69	0.94	1.31
1984	0.69	0.92	1.02	0.69	0.94	1.31
1985	0.55	0.77	1	0.65	0.93	1.73
1986	0.55	0.77	1	0.65	0.93	1.73
1987	0.55	0.77	1	0.65	0.93	1.73
1988	0.67	0.92	1.16	0.75	1.07	1.91
1989	0.67	0.92	1.16	0.75	1.07	1.91
1990	0.67	0.92	1.16	0.75	1.07	1.91
1991	0.93	1.27	1.45	0.99	1.38	2.02
1992	0.93	1.27	1.45	0.99	1.38	2.02
1993	0.93	1.27	1.45	0.99	1.38	2.02
1994	0.93	1.27	1.45	0.99	1.38	2.02
1995	1.11	1.49	1.74	1.17	1.6	2.18
1996	1.11	1.49	1.74	1.17	1.6	2.18
1997	1.11	1.49	1.74	1.17	1.6	2.18
1998	1.11	1.49	1.74	1.17	1.6	2.18
1999	1.14	1.54	1.81	1.22	1.66	2.3

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AAP/USPS-T37-2 Please provide all underlying data used to prepare Figure 6 that appears at page 30 of your testimony.

RESPONSE

Please see Attachment to the response to AAP/USPS-T37-2.

Attachment
AAP/USPS-T37-2

BASIC PRESORT SAMPLE RATES

Mid Year	Rate for 1-Pound Parcel			Rate for 3.5-Pound Parcel		
	Local	Zones 1&2	Zone 6	Local	Zones 1&2	Zone 6
1985	0.276	0.383	0.611	0.366	0.541	1.339
1986	0.276	0.383	0.611	0.366	0.541	1.339
1987	0.276	0.383	0.611	0.366	0.541	1.339
1988	0.348	0.488	0.730	0.418	0.633	1.480
1989	0.348	0.488	0.730	0.418	0.633	1.480
1990	0.348	0.488	0.730	0.418	0.633	1.480
1991	0.460	0.632	0.813	0.510	0.737	1.371
1992	0.460	0.632	0.813	0.510	0.737	1.371
1993	0.460	0.632	0.813	0.510	0.737	1.371
1994	0.460	0.632	0.813	0.510	0.737	1.371
1995	0.553	0.743	0.909	0.611	0.851	1.432
1996	0.553	0.743	0.909	0.611	0.851	1.432
1997	0.553	0.743	0.909	0.611	0.851	1.432
1998	0.553	0.743	0.909	0.611	0.851	1.432
1999	0.568	0.771	0.953	0.638	0.899	1.536

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS KIEFER TO INTERROGATORIES OF ASSOCIATION OF AMERICAN PUBLISHERS

AAP/USPS-T37-3 On page 30 (lines 9-12) of your testimony, you describe the migration of books from the Special Standard subclass as continuing "well into the 1990s, after this migration was believed to be complete." Please identify and provide all studies, reports, data or other evidence that you relied upon to conclude that this migration was "believed to be complete" by sometime in the 1990s.

RESPONSE

The question inaccurately characterizes the testimony. The testimony refers to the volume of Bound Printed Matter and states that "*growth* continued well into the 1990s..." (emphasis added). The testimony identifies migration of books from Special Standard Mail as *one factor* that *initially* contributed to the growth of Bound Printed Matter volumes during the 1980s and 1990s.

The statement that this migration was believed to be complete by some time in the 1990s rests on the testimony of USPS witness Nai-Chi Wang (USPS-T-21) in Docket No. R90-1. Section II.F. of witness Wang's testimony, beginning on page 32 and running through page 35 discusses the book migration issue (Please see Attachment AAP/USPS-T37-3). In drawing his conclusions, witness Wang relies in part on the testimony of AAP witness Baer in Docket No. R87-1. Witness Wang then sums up, "[I]t also confirms witness Baer's testimony that the migration has essentially been completed." This conclusion was the basis of my testimony that rapid growth continued into the 1990s after the book migration from Special Standard Mail was believed to be over.

Attachment
AAP/USPS-T37-3

E. Test-Year Costs and Revenues

Test-year costs and revenues (including domestic mail fees) for bound printed matter, before and after rates, are displayed below:

	Bound Printed Matter Cost (000,000)	Revenue	Revenue as Percent of Cost
Before Rates	$238.3	$320.3	134.4%
After Rates	$216.1	$327.2	151.4%

Cost per piece, revenue per piece, contribution to institutional costs, and the percent rate increase are as follows:

Bound Printed Matter	Proposed Rates
Cost per piece	$0.535
Revenue per piece	$0.810
Contribution to Institutional Costs	$0.275
Percent Rate Increase	14.4%

Postal Service witness Lyons proposes a 152 percent cost coverage which results in a rate increase of approximately 14.4 percent.

F. Proposed Classification Change

The Postal Service proposes a change to the Domestic Mail Classification Schedule for bound printed matter to include the mailing of books. The proposed change in the classification schedule is consistent with 39 U.S.C. section 3623(c). The purpose of the change is to offer mailers a choice between fourth-class special-rate and bound printed matter without the mailer's having to resort to the

nominal use of advertising for the book to be eligible.

1. History

Books, according to DMCS (Domestic Mail Classification Schedule) 400.023(e), are not generally eligible for mailing as bound printed matter because they are eligible for special-rate fourth-class. However, under DMCS 400.023(f) book mailers have qualified for bound printed matter by including non-incidental advertising. Thus, when it became advantageous, publishers began including such advertising in their books and the migration from special rate to bound printed matter began.

I have examined the information available on volume. I agree with industry witnesses in Docket No. R87-1 who testified that it is clear that books once tendered as special-rate fourth-class mail have migrated from special rate to bound printed matter in substantial numbers.

In Docket No. R87-1, Association of American Publishers witness Baer testified as follows (PRC Op., Docket No. R87-1, Vol. I, at 729):

(a) Reader's Digest had already converted over 80 percent of its book volume to bound printed matter. The conversion was essentially completed at that time.

(b) Most publishers had already made similar conversions.

(c) Mailers should be permitted the least costly way of mailing books without having to include advertising.

2. Quantitative Evidence

An inspection of the aggregated volume data for special rate and bound printed matter since 1971 shows distinctly different special-rate volume patterns before and after 1979, the year that phased rates for special-rate fourth-class were ended (Exhibit USPS-21H).

During the period of 1971-1978, fourth-class special-rate volume had no clear growth trend. It simply fluctuated from year to year within a narrow range. There were 288 million pieces in 1971, and 283 million pieces in 1978 with an average annual volume of about 290 million pieces per year for the eight-year period. Thus, the level of volume remained virtually unchanged. In percentage terms, the average change from 1971 to 1978 was negligible. Meanwhile, bound printed matter volume, on average, declined by 3.1 percent a year. These data suggest that the migration of books from special rate to bound printed matter did not occur during the 1971-1978 period.

After preferred rates for special-rate were phased out in July 1979, a downward trend in special-rate volume is evident. On average, special-rate volume declined 13.1 million pieces or 5.6 percent a year in the period of

1979-1987. The volume was only 165 million pieces in 1987, a total decrease of 118 million pieces or about 42 percent from the 283 million in 1978.

During the 1979-1987 period, while special-rate volumes declined, bound printed matter, reversing its downward trend, experienced volume increases. The increases cannot be attributed to the normal growth of the catalogs component. According to the testimony of Mail Order Association of America (MOAA) witness Stadelman in Docket No. R87-1, MOAA's volume of mailed catalogs declined from 79 million pieces in 1980 to 63 million pieces in 1986. These facts strongly suggest that a migration of books from special rate to bound printed matter was, in fact, taking place. It also confirms witness Baer's testimony that the migration has essentially been completed. Therefore, the proposed change is expected to have little impact on further migration.

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AAP/USPS-T37-4 On page 33 (lines 3-4) of your testimony, you state that "the Postal Service proposes that the Commission recommend elimination of a separate Local zone rate for Bound Printed Matter." With respect to this statement, please identify and provide all studies or reports that pertain to the recommended elimination of the Local zone rate for BPM.

RESPONSE

No studies were conducted. However discussions took place involving Postal Service personnel in the finance, marketing and operations areas that led to the identification of the problems with the Local rate mail described in my testimony. These discussions also led to the proposal to develop a full range of drop ship discounts and the elimination of the Local rate as a solution to these problems. This solution was presented to and accepted by Postal Service management and is the basis of the classification changes proposed in my testimony.

See also, the response of USPS witness Linda Kingsley to AAP interrogatory AAP/USPS-T10-1 and the documents cited in that response.

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AAP/USPS-T37-5 With respect to the portion of your testimony pertaining to the elimination of Local zone BPM rates as described on page 33 of your testimony, please describe any alternatives to the elimination of the Local zone rates that were considered prior to the filing of this case. Please identify and provide all studies, reports, data or other evidence that describe any of these alternatives.

RESPONSE

Please see the response to the previous question. In the course of the discussions referred to in that response, the possibility of offering both a Local rate that was considerably higher than the current Local rate, as well as a lower DDU rate was briefly considered. This alternative was rejected early on as overly complicated and likely to result in confusion among both mailers and USPS personnel if implemented. No formal studies, reports, data or other evidence describing this or other alternatives exist.

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AAP/USPS-T37-6 On page 33 (lines 9-10) of your testimony, you describe the costs for processing and transportation of BPM entered as Local mail that "were not incorporated into the Local rate." With respect to this statement, please identify and provide all studies, reports, data or other evidence relied upon to conclude that any of these processing and transportation costs for BPM entered as Local mail have not already been captured in the current Local zone rate for BPM.

RESPONSE

No studies were performed. However Postal Service finance personnel did review the cost assumptions that underlay the Local rates and found them to be inconsistent with the operational realities of the way this mail was handled. This review consisted of information gathering, and produced no report.

See also, the response of USPS witness Linda Kingsley to AAP interrogatory AAP/USPS-T10-1 and the documents cited in that response.

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(REVISED APRIL 26, 2000

AAP/USPS-T37-7 At footnote 13 of page 33 of your testimony, you state that "[w]ith elimination of the Local zone, all mail formerly paying the Local rate would fall into the Zones 1&2 rate category, unless prepared and entered as DDU mail." With respect to this statement:

(a) Has the Postal Service estimated the number of pieces of BPM in the test year that formerly paid the Local rate but will now pay the Zone 1&2 rate because they cannot achieve the preparation requirements necessary for any Destination Delivery Unit ("DDU") discounts?

(b) If the answer is yes to subpart (a) of this interrogatory is yes, please provide this estimate, explain how the piece volume estimate was derived and identify all studies, reports, data or other evidence upon which such estimate was based.

RESPONSE

(a) No. However, the Postal Service has a study that indicates where BPM mail paying the Local rate is currently deposited. See Attachment to response to AAP/USPS-T37-7. Approximately 49% is currently entered at DDU, 44% at DSCF and 1% at DBMC. Only 5.2% is entered at locations where the Zones 1&2 rate would apply. The question has also called to my attention an inaccuracy in Footnote 13; in addition to the DDU rate, mail currently paying the Local rate can also potentially be prepared and entered as DSCF or DBMC mail. An erratum correcting Footnote 13 is being filed to include these other rate options for Local rate mail.

(b) Please see Attachment H, Table 1 (Revised April 14, 2000) to the testimony of USPS witness Charles Crum (USPS-T-27) which presents the study finding cited in subpart (a).

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Entry Location for Current Local Rate Mail
(Source: USPS-T-27, Attachment H, Table 1, Revised April 14, 2000)

DDU	49.2%
Other DU	5.2%
DSCF	44.4%
DBMC	1.2%

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AAP/USPS-T37-8 On page 33 (lines 12-15) of your testimony, you state that "[b]y restricting the availability of these discounts to DDU-entered mail, the Postal Service will ensure that the rates paid by mail claiming the discounts will more closely reflect the costs to process and deliver it." Please describe fully how the discounts can be restricted to DDU-entered mail.

RESPONSE

Please see the Postal Service's proposed changes to the Domestic Mail Classification Schedule (Attachment A to Request of the United States Postal Service for a Recommended Decision on Changes in Rate of Postage and Fees for Postal Service, at page 46). Proposed DMCS Section 522.9 establishes eligibility for BPM to receive the DDU rate. Section 522.9 restricts DDU rate treatment to mail that, in addition to meeting other qualifications, is "entered at a designated destination delivery unit, or other equivalent facility, as specified by the Postal Service."

Section 533.9, if recommended by the Postal Rate Commission and approved by the Governors will restrict DDU discounts to DDU-entered (or DDU-equivalent-entered) mail.

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AAP/USPS-T37-9 At footnote 14 on page 34 of your testimony, you state that "[t]o make drop-shipped BPM consistent with drop-shipped Parcel Post, the Postal Service also proposes that mailers using these rates pay an annual $100 destination entry permit fee." With respect to this statement:

(a) Please explain why drop-shipped BPM must be "consistent" with drop-shipped Parcel Post.

(b) Please explain the purpose and basis for assessing the $100 destination entry permit fee.

RESPONSE

(a) In the absence of a compelling reason to treat Parcel Post and BPM differently, maintaining simplicity in the rate schedule and in the relationships between the fees charged the various classes of mail argues for charging the same fee for similar permits.

(b) This part of the question has been redirected to USPS witness Mayo for response. The $100 amount cited for the permit fee in my testimony is in error. The fee proposed by witness Mayo is $125. An erratum to my testimony is being filed to make the amount of the fee consistent with the testimony of witness Mayo where the fee is proposed.

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AAP/USPS-T37-10 On page 38 of your testimony is a chart (Table 15) which compares preliminary and current BPM rate elements. With respect to Table 15:

(a) Do the "current rates" for BPM shown on Table 15 on page 38 of your testimony correspond to the current per piece and per pound rates shown on WP-BPM-13? If your answer is no, please identify and explain the discrepancies between the two documents.

(b) WP-BPM-13 shows per-piece and per-pound rates for BPM pieces in the local zone that do not appear on Table 15. For example, WP-BPM-13 shows a per piece rate of $0.54 and a per pound rate of $0.028 for presort BPM in the Local zone. Did you calculate any estimate of the percent change that would have been produced if you had included in Table 15 a comparison of preliminary rates to the current rates for BPM in the Local zone? If your answer is yes, please provide the estimate of the rate change and identify and provide all studies, reports, data or other evidence upon which such estimate was based. If your answer is no, please explain why no such estimate was calculated or considered in preparing your testimony.

RESPONSE

(a) The current rates for the zones listed in Table 15 correspond to the per-piece and per-pound rates shown on WP-BPM-13 for the corresponding zones.

(b) No. As was stated in my testimony, I have proposed a destination entry unit (DDU) discounted rate to replace the Local rate. The preliminary rates shown for comparison in Table 15 are rates for origin-entered, rather than destination-entered mail, so the appropriate comparisons would be between these rates and existing origin-entry rates for the same zones. I present comparisons between the current Local rate and proposed Basic Presort and Carrier Route Presort

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DDU rates in my workpapers WP-BPM-24 and WP-BPM-26. The proposed DDU rates, rather than the preliminary zoned rates, are the appropriate reference points for comparison with the current Local rates. However, since some current Local rate mail may be entered at DSCFs, DBMCs or at other facilities than at the DDU, Attachment to response to AAP/USPS-T37-10 presents some percentage rate increases for sample Basic Presort parcels weighing two and four pounds each.

Attachment to response to AAP/USPS-T-37-10

Rate Increases for a 2- and 4-Pound Local Rate Parcel
Under Proposed Rates, Assuming Different Entry Locations

	Current Local Rate	Proposed DDU Rate	Proposed DSCF Rate	Proposed DBMC Rate	Proposed Zone 1&2 Rate
2-Pound Parcel Postage	0.596	0.674	0.729	0.963	1.033
Percent Increase		13.1%	22.3%	61.6%	73.3%
4-Pound Parcel Postage	0.652	0.74	0.799	1.083	1.161
Percent Increase		13.5%	22.5%	66.1%	78.1%

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AAP/USPS-T37-11 On page 37 (lines 24-26) of your testimony, you explain that certain of the rate increases shown on Table 15 "would produce a severe rate shock if the preliminary charges were implemented without adjustment." On page 38 of your testimony you also state that mitigating rate shock is but one of several "policy reasons" for adjustment of the preliminary rate elements set forth in Table 15. With respect to this statement:

(a) Are severe rate shocks such as those shown in Table 15 avoided as a matter of postal rate-making policy? If yes, please explain why.

(b) Please explain why the rates as proposed for BPM as shown in Table 16 do not result in or constitute rate shock.

RESPONSE

(a) Avoiding severe rate shocks is a policy consideration in developing rates proposed to the Commission. It is not the sole determining factor in developing rates.

(b) Any rate shock that might result from the proposed rates shown in Table 16 would certainly be smaller than it would have been without the Postal Service's mitigation efforts.

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AAP/USPS-T37-12 On page 39 (lines 3-5) of your testimony, in developing drop-ship discounts for BPM, you explain "[p]rudence argues for a conservative implementation of these discounts, passing through only a portion of the estimated cost savings in this rate proceeding, in case the proxy cost savings turn out to be overly optimistic." With respect to this statement, please provide for each rate element of BPM listed on Table 16 or your testimony: (a) the per piece and per pound cost savings estimated by the USPS and (b) the percentage of those cost savings that have been passed through in the proposed BPM rates in this case. Please identify and provide all studies, reports, data or other evidence upon which your answer is based.

RESPONSE

Please see Attachment AAP/USPS-T37-12. The Attachment was developed from data in my workpapers, WP-BPM-1, WP-BPM-15 and WP-BPM-16.

Attachment to Response to AAP/USPS-T37-12 (Revised)
4/18/00

Pass-Through of Cost Savings

Discount	Savings	Per-Piece Discount	Pass-Through	Savings	Per-Pound Discount	Pass-Through
DBMC						
Zones 1&2	0.38	0.062	16%	0.047	0.004	9%
Zone 3	0.38	0.062	16%	0.018	0.006	33%
Zone 4	0.38	0.062	16%	0.003	0.006	200%
Zone 5	0.38	0.062	16%	-0.100	0.008	-8%
DSCF	0.529	0.246	47%	0.064	0.029	45%
DDU	0.656	0.297	45%	0.088	0.031	35%
Carrier Route	0.077	0.077	100%	0	0	
Barcode	0.029	0.030	103%	0	0	

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AAP/USPS-T37-13 On page 39 (lines 7-9) of your testimony, you state that "the per-piece cost savings estimated by Witness Crum for DBMC Bound Printed Matter are based on the assumption that BMC mail processing costs are nearly 100% volume variable." On page 39 of your testimony (lines 9-11), you also state that "[w]hile the Postal Service is using this assumption for calculating attributable costs in this docket, it is uncertain that mail drop-shipped to BMCs will avoid all of these costs...." In view of the latter statement, please explain the assumption that BMC mail processing costs for BPM are nearly 100% variable.

RESPONSE

Please see the testimony of USPS witness Bozzo (USPS-T-15), pages 132 to 139 for an explanation.

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AAP/USPS-T37-14 The workpapers which support your testimony, particularly at WP-BPM-22 to WP-BPM-26, estimate in percentage terms the proposed changes for BPM that the USPS is recommending in this case. These workpapers omit any reference to proposed changes for the BPM mail that currently is charged at the Local zone rate. Please provide any workpapers or any other studies, reports, data or other evidence that describe or show percentage increases for mail currently charged at the Local zone rate.

RESPONSE

The question incorrectly asserts that no reference is made to proposed rate changes for BPM mail that currently pays the Local rate. Workpapers WP-BPM-24 and WP-BPM-26 show the percentage rate increases for DDU rate mail compared to mail paying the Docket No. R97-1 Local rates. This is stated explicitly in Note [3] to each workpaper and is further stated in my testimony on page 41, lines 2 and 3.

There are no other documents or workpapers showing percent increases for BPM currently paying the Local rate.

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AAP/USPS-T37-15 Please refer to your response to AAP/USPS-T37-4. In your response you refer to discussions within the Postal Service that "led to the proposal to develop a full range of drop ship discounts and the elimination of the Local rate as a solution to these problems." With respect to this statement:

(a) Please address whether any consideration was given to phasing in the drop ship discounts for BPM, much in the same manner that such discounts were phased in for the Parcel Post subclass.

(b) Please provide all documents which pertain to the discussions and the proposal to eliminate the Local rate and to develop the full range of drop ship discounts, including any documents which constitute such proposal.

RESPONSE

(a) I was not a participant in these discussions, but it is my understanding that phasing was not considered.

(b) It is my understanding that there are no such documents.

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AAP/USPS-T37-16 Please refer to your response to AAP/USPS-T-37-5. In your response, you state that "the possibility of offering both a Local Rate that was considerably higher than the current Local Rate as well as a lower DDU rate was briefly considered" but that this alternative was rejected. You also state that "no formal studies, reports, data or other evidence describing this or other alternatives exist" that address alternatives to the elimination of the Local zone rates. With respect to your response to AAP/USPS-T-37-5:

(a) Please describe the extent and substance of all discussions regarding such alternatives.

(b) Please explain, in further detail, why such alternatives were rejected.

(c) Please provide all documents which describe or pertain to such alternatives and the rejection of these alternatives.

RESPONSE

(a) I was not at the discussions in which these alternatives were considered, but it is my understanding that the discussions consisted of one brief meeting. During that meeting, it became apparent to the participants that, once a DDU discount was established, the continued existence of a separate Local rate would have no apparent justification or logic. Moreover, participants believed that the rate structure and level for any continuing Local rate would have to be adjusted to reflect the costs imposed by mail entered as Local rate mail better than the ad hoc pricing assumptions used in the past. It was believed that such adjustments would yield a Local rate that was higher than the DDU rate. Maintaining this separate, higher rate for Local rate mail was believed to add unnecessarily to rate complexity and hence it was rejected from further consideration.

(b) See the response to subpart (a).

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(c) No documents were created.

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AAP/USPS-T37-17 Please refer to your response to AAP/USPS-T37-6. In your response, you state that "Postal Service finance personnel did review the cost assumptions that underlay the Local rates." You also state that "[t]his review consisted of informational gathering, and produced no report." Please provide all documents that describe the "cost assumptions" and the analysis of those assumptions referred to by your response.

RESPONSE

The cost assumptions underlying current Local rates are contained in the testimony and relevant workpapers of USPS witness Adra in Docket No. R97-1 (USPS-T-38). Please refer to Sections I to III of witness Adra's testimony which deal with Bound Printed Matter, and witness Adra's BPM workpapers. In particular, witness Adra's workpapers show that, in developing the rates for Local rate mail, no share of BPM's transportation costs were allocated to Local rate mail. This assumption is inconsistent with the realities of the way Local rate mail is processed by the Postal Service. I did not participate in this review of Local rate cost assumptions, but I understand that no documents were produced as part of the review process.

REVISED 4/18/00

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AAP/USPS-T37-18 Please refer to the attachment to your response to AAP/USPS-T37-12. Please provide a complete explanation of the savings and per piece discounts shown in the right hand columns of the attachment.

RESPONSE

The column title for the three columns on the right in the attachment contained a typographical error. It should have read "Per Pound" rather than "Per Piece." In reviewing this table, I also discovered another error in the way the per-pound savings for the DSCF and DDU discounts were computed. The values for the per-pound savings in the original attachment were too high, causing the reported pass-through percentages to be too low for these discounts. A corrected version of the table is being provided.

The per-pound savings are the difference between the fully marked up costs (cost plus leakages per pound) for the non-drop-shipped pounds in each zone less the fully marked up costs for the discounted pounds in the same zone. The difference between these two figures is the cost savings per pound. The Zones 1&2 costs were used as the reference point for the DSCF and DDU discounts. The per-pound discounts are the differences between the final per-pound rates shown in my workpaper WP-BPM-16. The pass-through per pound is the ratio of the per-pound discount to the per-pound cost savings expressed as a percentage.

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AAP/USPS-T37-19 Please refer to WP-BPM-1 and WP-BPM-2. Both workpapers show input values used to prepare the BPM rates proposed in this case. With respect to these input values, please confirm that the correct mathematical procedure for eliminating the proposed DSCF and DDU discounts without changing the overall BPM TYAR cost coverage shown by Mr. Kiefer would be as described below. If this procedure is not correct, please provide a full explanation of the correct procedure to be followed for eliminating the proposed DSCF and DDU discounts.

1) On WP-BPM-15, under the heading "Presort Bound Printed Matter" at columns (B), (D), (G) and (J), set DSCF and DDU rates and rate adjustments to equal the rates and rate adjustments shown for Zone 1&2.

2) Set inputs 13 (c) and 13 (d) to zero.

3) Reduce the Cost Coverage Markup Facto (WP-BPM-1, Input (2)) from 117.62% to 115.80% in order to bring the cost coverage to its previous level of 117.6%.

RESPONSE

I have not attempted any calculations to eliminate the DSCF and DDU discounts, so I do not know what the correct mathematical procedure to do so is.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS KIEFER
TO INTERROGATORIES OF THE ASSOCIATION OF AMERICAN PUBLISHERS

AAP/USPS-T37-20 Please provide any documents that show the derivation of the same test-year after rate revenue and cost coverage for BPM currently proposed by the Postal Service but that retain the existing BPM rate structure.

RESPONSE

No such documents exist.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS KIEFER
TO INTERROGATORIES OF THE ASSOCIATION OF AMERICAN PUBLISHERS

AAP/USPS-T37-22 Please provide any mailer makeup requirements that you relied upon in estimating the amount of BPM mail that would qualify for the DBMC, DSCF and DDU discounts.

RESPONSE

To estimate of the amounts of mail that would be entered at the various discounted rates, I relied on the results of the BPM Mail Characteristics Study described in the testimony of USPS witness Charles Crum (USPS-T-27). A copy of the results of this survey are presented in Attachment H to his testimony. Mail preparation requirements for the new drop-ship discounts have not yet been determined as of this date.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS KIEFER
TO INTERROGATORIES OF THE ASSOCIATION OF AMERICAN PUBLISHERS

AAP/USPS-T37-23 Please refer to Table 14 found on page 31 of your testimony. With respect to Table 14:

(a) Please identify the source of the BPM volume data shown in Table 14 of your testimony and identify all alternative sources for BPM volume data that are available to the Postal Service.

(b) Please update Table 14 to reflect FY 1999 volume figures for BPM.

(c) Please explain footnote 2 of Table 14 which states that "1998 is recast to account for a Parcel Post reclassification."

RESPONSE

(a) Redirected in part to the United States Postal Service. The BPM volume in Table 14 is derived as follows: volume for years 1972 through 1976 is taken from the Cost and Revenue Analysis (CRA) Report. Volume for years 1977 through 1998 is taken from the Revenue, Pieces and Weight (RPW) Report.

(b) See attached updated Table 14. The data for 1999 are taken from the RPW report.

(c) Redirected to the United States Postal Service.

Attachment to Response to
AAP/USPS-T37-23

TABLE 14 (Updated)
BOUND PRINTED MATTER VOLUME HISTORY

Note	Fiscal Year	Total Volume (Millions)	Single Piece Volume (Millions)	Basic Presort Volume (Millions)	Carrier Route Volume (Millions)
	1972	106.3			
	1973	86.1			
	1974	88.3			
	1975	81.6			
	1976	75.0			
	1977	85.1			
	1978	86.4			
	1979	101.8			
	1980	116.4			
	1981	118.7			
	1982	165.2			
	1983	168.1			
	1984	194.8			
	1985	212.8	17.3	137.3	58.3
	1986	249.2	21.2	143.5	84.5
	1987	255.5	18.7	155.8	81.1
1/	1988	308.9	35.3	180.8	92.8
	1989	312.3	36.6	198.1	77.6
	1990	344.8	19.6	235.2	90.0
	1991	363.5	20.4	248.6	94.5
	1992	391.8	29.2	259.8	102.8
	1993	353.6	19.7	261.9	72.0
	1994	420.1	34.2	293.0	92.8
	1995	470.9	39.5	288.7	142.7
	1996	516.1	32.5	369.5	114.1
	1997	521.7	25.4	389.8	106.5
2/	1998	488.4	28.6	359.0	100.8
	1999	495.7	28.4	361.9	105.4

Note 1/: 1988 and following years are recast to include a share of penalty and franked mail

Note 2/: 1998 is recast to account for a Parcel Post reclassification

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS KIEFER
TO INTERROGATORIES OF THE ASSOCIATION OF AMERICAN PUBLISHERS

AAP/USPS-T37-24 Please provide a complete and detailed explanation describing why proposed rates for Basic Presort BPM mail are increasing from between 21.8% to 25.9%, depending on weight and zone. In responding to this question, please address the following issues:

(a) Identify, in detail, each factor which contributed to the increase.

(b) Please justify the need and basis for a 25.9% increase since the last rate case.

(c) Explain whether each of the factors which contributed to the rate increase existed or was known, at the time of the Postal Service's filing in R97-1.

(d) Please address whether the Postal Service considered the effect that a 25.9% increase might have on the BPM mailers and the future viability of the BPM subclass.

(e) Does a 25.9% increase constitute rate shock?

RESPONSE

(a) The following factors contributed to the final rate increases proposed for Basic Presort BPM:

- An increase in BPM unit costs
- A decrease in the markup for BPM
- Allocation of costs between BPM single piece, BPM Basic Presort, and BPM Carrier Route Presort; between BPM pieces and pounds; and between origin entry and destination entry.
- Mitigation of rate increases.

My workpapers WP-BPM-1 to WP-BPM-16 provide and document the mathematical details showing how the rates were developed.

(b) From the base year of the last rate case to the base year of the present rate case unit costs for BPM as a whole increased by more 40%. A large increase in rates is needed to cover this cost increase. The specific 25.9% percentage increase

cited in the question resulted from applying the allocation process cited in subpart (a) to the unit cost increase. The specific increase cited in the question is higher than the average cost increase for the subclass as a whole (18.1%). The higher than average increase is justified in part because the Postal Service is proposing to de-average rates, offering lower rates to those mailers who enter BPM at DBMCs, DSCFs or DDUs. In consequence, mailers who do not drop ship their mail to destination BMCs, SCFs of DUs will see higher than average rate increases.

(c) The unit cost increases between the two base years was not known. The R2000-1 markup percentage was not known. In many aspects the rate design methodology used in the current rate case to allocate the costs among the various components is similar to that used by the Postal Service in R97-1, however there are some significant differences. Chief among these differences is the need to accommodate the new drop-ship discounts proposed in R2000-1, as well as the significant modifications to the preliminary rates employed to mitigate the "push-up" consequences of the rate de-averaging proposed in R2000-1.

(d) Yes. The Postal Service considers the 25.9% increase (which is the maximum increase seen by Basic Presort mailers) to be a large increase. As I pointed out in my testimony, we considered the percentage increases inherent in the preliminary rates, before any mitigation efforts (Table 15) to be too high to ask mailers to pay. For this reason we engaged in significant mitigation efforts which brought the highest percentage increase required of some Basic Presort mailers

down to 25.9% or less. At the same time we attempted to offer drop-ship mailers, who account for the majority of BPM volumes, a reasonable pass-through of estimated drop-shipment cost savings. Since the Postal Service expects a majority of BPM mail will take advantage of one or another of the new drop-ship discounts, maintaining a viable subclass argues for keeping the drop-shipped mailers' rate increases reasonably low, given the underlying cost increases. We considered both the rate increases to the non-drop-shippers (including those mailing in the 25.9% rate cells), as well as the rate increases to the drop-shippers, when we put together a rate proposal that reasonably balances the present and future needs of the BPM subclass as well impacts on BPM mailers.

(e) The higher the overall percentage rate increase, the greater is the likelihood that some mailers will perceive rate shock. The Postal Service mitigated the rate increases as much as it reasonably could to lower the potential for rate shock to all BPM mailers. Please see my response to subpart (d), above.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS KIEFER
TO INTERROGATORIES OF THE AMERICAN LIBRARY ASSOCIATION

ALA/USPS-T37-2. Please produce a table showing the rate changes for Library Rate mail that would follow from the Postal Service's proposed cost estimates if the existing statutory constraints on Library rates remain unchanged. Please use a format comparable to the rate schedule appearing in the Postal Service's Request at Attachment B, page 52.

RESPONSE:

Please see the attached table.

Package Services

Rate Schedule 524
Library Mail Subclass

		Current Rates (cents)	ALA/USPS-T37-2 Rates (cents)
First Pound	Not Presorted[4]	113	120
	Level A Presort (5-digits)[1,2]	64	67
	Level B Presort (BMC)[1,3,4]	95	98
Each additional pound through 7 pounds		45	45
Each additional pound over 7 pounds		28	30

Schedule 524 Notes

1 A fee of $125.00 must be paid once each 12-month period for each permit.

2 For mailings of 500 pieces properly prepared and presorted to five-digit destination ZIP Codes.

3 For mailings of 500 or more pieces properly prepared and presorted to Bulk Mail Centers.

4 For Barcode Discount, deduct $0.03.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS KIEFER
TO INTERROGATORIES OF DAVID B. POPKIN
REDIRECTED FROM THE UNITED STATES POSTAL SERVICE

DBP/USPS-66 [a] In comparing the proposed rates for Media Mail [presently called Special Standard Mail] and Library Mail, confirm that the rates for all of the 350 rate cells [Single Piece / 5-digit / BMC / with and without barcoded discount] the rate for Media Mail is always one cent greater than the corresponding rate for Library Mail. [b] Confirm that there are special criteria to determine the eligibility for a mailer to utilize the Library Mail rate. [c] Confirm that a mailer who is eligible to utilize the Library Mail rate will always be able to utilize the Media Mail rate. [d] Confirm that only certain types of material may be mailed at both the Media Mail and/or Library Mail rates. [e] Provide a complete listing of the type of material, if any, that qualifies for mailing at the Library Mail rate but does not qualify for mailing at the Media Mail rate. [f] With respect to any categories listed in response to subpart e, provide data, or an estimate if data is not available, of the percentage of all Library Mail packages that these items represent. [g] Confirm that the one cent discount for all of the 350 rate cells is not cost based. [h] Confirm that the one cent discount represents a "token discount" only with the main purpose of making the Library Mail rate less than the Media Mail rate. [i] Provide and discuss the historical and current reasons for maintaining a separate Library Mail rate. [j] Provide reasons why you feel that the one cent discount will continue to provide a continuing utilization of the service. [k] Explain and discuss any items that you are unable to confirm.

RESPONSE

[a] Confirmed.

[b] Confirmed.

[c] Confirmed to the extent that the question focuses on the mailer rather than the material mailed.

[d] Confirmed.

[e] The types of material eligible for mailing at the Media Mail rate are described in the current DMCS in section 323.11. The types of materials eligible for mailing at the Library Mail rate are described in the current DMCS in sections 323.213, 323.214 and 323.215. In general, in section 323.213, the items described in paragraphs c, d, f, and g are eligible for mailing at the Library Mail rate, but not at the Media Mail rate. Books described in section 323.213, paragraph a, will generally be eligible for mailing at both

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS KIEFER
TO INTERROGATORIES OF DAVID B. POPKIN
REDIRECTED FROM THE UNITED STATES POSTAL SERVICE

the Library Mail rate and the Media Mail rate, although the restrictions on number of pages and incidental advertising appears to be tighter in section 323.11, paragraph a (Media Mail). In general, in section 323.214, the items described in paragraphs c, d, and e are eligible for mailing at the Library Mail rate, but not at the Media Mail rate. In section 323.214, paragraph a, only 16mm or narrower width films appear to be eligible for mailing at both the Library Mail rate and the Media Mail rate.

[f] The Postal Service has no data on the volume or percentage of Library Mail that is not also eligible to be mailed at the Media Mail rate; however, the amount and percentage are believed to be small.

[g] Confirmed.

[h] The discount is intended to serve two chief purposes: to provide Library Mail with a preferred rate relative to Media Mail; and to benefit the Postal Service and ultimately, Library Mail mailers, by providing mailers with an incentive to mark their mail as Library Mail, so that the Postal Service can continue to track this mail and estimate its volume, weight, costs and revenue. Since Library Mail rates with a one-cent discount were already below the rates that would emerge by applying the markup formula in the RFRA, the Postal Service decided not to propose any deeper discount than it believed was necessary to accomplish its purposes. The one-cent discount meets these criteria.

[i] The Library Mail rate has existed as a separate rate since it was established by Congress in 1928. Although the law has been amended many times since the Library Mail rate was established, Congress has continued to recognize Library Mail as a separate mail classification with its own rate structure.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS KIEFER
TO INTERROGATORIES OF DAVID B. POPKIN
REDIRECTED FROM THE UNITED STATES POSTAL SERVICE

[j] For an eligible mailer, the only difference between entering a mailpiece as Library Mail or as Media Mail is the way the piece is marked. Since there is no incremental cost to the mailer to take advantage of the lower rate, the Postal Service believes it is reasonable to assume that mailers will do so.

[k] See items [a] to [j].

RESPONSE OF U.S. POSTAL SERVICE WITNESS KIEFER
TO INTERROGATORY OF UNITED PARCEL SERVICE

UPS/USPS-T37-1. Identify all instances in which you have relied on or used in your testimony in any way any FY 1999 cost, revenue, volume, or other data, and state in each such instance why you used FY 1999 data instead of data for BY 1998.

RESPONSE:

I used FY 1999 data directly in the following ways.

1. I used FY 1999 volume data to calculate the shares of single piece and presort Media Mail (Special Standard Mail) that received the barcoding discount, and then used these shares to develop my rates. These calculations are presented and documented in my workpaper WP-SS-1, Items 6 and 7. I used FY 1999 data because comparable data were not available for FY 1998. Special Standard Mail first became eligible for the barcoding discount on January 10, 1999.
2. I used FY 1999 volume data to calculate partial year billing determinants for Library Mail and used these billing determinants to develop my rates. In particular I used these data to calculate the shares of Library Mail that received presort and barcoding discounts. These billing determinants are presented in my workpaper WP-LM-2. The barcoding shares calculations are presented and documented in my workpaper WP-LM-1, Items 6 and 8. I used FY 1999 data because comparable data were not available for FY 1998. Library Mail first became eligible for presort and barcoding discounts on January 10, 1999.
3. I used FY 1999 volume data to calculate the shares of single piece and presort Bound Printed Matter that received the barcoding discount, and then

used these shares to develop my rates. These calculations are presented and documented in my workpaper WP-BPM-1, Items 7 and 8. I used FY 1999 data because comparable data were not available for FY 1998. Bound Printed Matter first became eligible for the barcoding discount on January 10, 1999.

My workpapers WP-SS-1, WP-LM-1, and WP-BPM-1 identify where I relied on data supplied by other Postal Service witnesses. I do not know the extent to which these witnesses relied on FY 1999 data.

CHAIRMAN GLEIMAN: Is there any additional party with Designated Written Cross Examination for the witness?

Mr. Przypyszny?

MR. PRZYPYSZNY: Yes, Mr. Chairman, John Przypyszny, Association of American Publishers.

I have one additional designation that results from a filing made, a response to an interrogatory that was filed by the Postal Service yesterday.

If I may approach the witness?

CHAIRMAN GLEIMAN: Certainly.

CROSS EXAMINATION

BY MR. PRZYPYSZNY:

Q Mr. Kiefer, I have just handed you your response to PostCom/USPS-T-37-3. If called upon to answer that question today, would your answer be the same?

A Yes.

MR. PRZYPYSZNY: Mr. Chairman, I'd like to have the interrogatory, PostCom/USPS-T-37-3, entered into evidence and transcribed into the record.

CHAIRMAN GLEIMAN: It's so ordered, if you'd please provide two copies to the Reporter.

[Additional Designated Written Cross Examination of James M. Kiefer, PostCom/USPS-T-37-3, was received into evidence and

transcribed into the record.]

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS KIEFER TO INTERROGATORIES OF ASSOCIATION FOR POSTAL COMMERCE

PostCom/USPS-T-37-3. Please refer to pages 38-39 of your testimony, where you state: "Aside from mitigating rate shock, there are several other policy reasons why some of these preliminary rate elements should be adjusted.

***

Second, the per-piece cost savings estimated by Witness Crum for DBMC Bound Printed Matter are based on the assumption that BMC mail processing costs are nearly 100% volume variable. While the Postal Service is using this assumption for calculating attributable costs in this docket, it is uncertain that mail drop-shipped to BMCs will avoid all of these costs, also arguing for a more conservative pass-through strategy."

(a) Please list all instances in this case where the variability estimates the Postal Service uses for rate design are different than the variability estimates it uses for costing.

(b) Please explain all reasons for using different variability estimates for rate design than for costing.

(c) If a variability estimate is accurate for costing, is it not also accurate for rate design? If not, please explain your reasoning.

RESPONSE

(a) I do not know of any instances where this has occurred, including in my own rate design. My testimony mentions the volume variability issue only within the context of identifying factors that were taken into consideration in judging whether to propose a full 100% pass-through of estimated BMC mail processing cost savings.

(b) I have not used different variability estimates for rate design than those that were used for costing.

(c) I have not investigated the variability issue and so am unable to express an opinion on it. I note that the Postal Service's views on this issue are presented in witness Bozzo's testimony (USPS-T-15, at pp.135-136).

MR. PRZYPYSZNY: Thank you.

CHAIRMAN GLEIMAN: Anyone else? If there is no one else, then that brings us to oral cross examination. Two parties have requested oral cross examination, the American Library Association and the Association of American Publishers.

It's my understanding that the Library Association does not, however, have any cross today.

Is there anyone else that wishes to cross examine this witness?

MR. PRZYPYSZNY: That would be AAP, Mr. Chairman.

CHAIRMAN GLEIMAN: And if that is the case, you're up, so whenever you're ready.

While we're waiting for counsel to get situated, just let me mention that regarding the question that was raised by UPS counsel a moment ago on the rebuttal testimony on the testimony of Witnesses Baron and Raymond, we will, indeed, extend the day that it is due for everyone, and the due date will be May 30.

MR. McKEEVER: Thank you, Mr. Chairman.

CHAIRMAN GLEIMAN: Whenever you're ready.

MR. PRZYPYSZNY: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. PRZYPYSZNY:

Q Mr. Kiefer, my name is John Przypyszny. I am

counsel for the Association of American Publishers.

I'd like to start out with just asking you a few basic factual questions regarding the rate increase:

Bound printed matter is facing the highest average increase of any subclass; is that not correct?

A That is my understanding.

Q Okay. And that average increase is 18.1 percent?

A Yes.

Q I'd like to -- do you have your workpapers with you today?

A I have copies of the -- I have paper copies of the workpapers, yes.

Q Could you refer to your workpaper -- I guess it's Workpaper BPM-23?

[Pause]

A I have it.

Q That workpaper has a heading, Computed Proposed Basic Presort Rate Percent Changes, correct?

A That's correct.

Q Would you please confirm that for basic presort Bound Printed Matter mail the rates shown on this workpaper 23, the increase range from anywhere from 21.8 percent all the way to 25.9 percent, is that correct?

A From my scanning of the table, that appears to be correct.

Q Now, the Postal Service is also requested a substantial restructuring of the BPM subclass, correct?

A It is proposing to add three drop ship discounts and eliminate the local rate for presort mail.

Q So, just to clarify, you are recommending the elimination of the local rate?

A That's correct.

Q And introduction of a DBMC discount?

A Correct.

Q A DSCF discount?

A Correct.

Q And a DDU discount?

A Correct.

Q Okay. Now, I would like to refer you to your response to AAP/USPS-T-37-24.

A I have it.

Q Now, in response to part (b) of that question, you state that, and I am paraphrasing here, but the unit costs for BPM as a whole have increased by more than 40 percent, is that not what you say?

A Between the base year of the last rate case and the base year of this rate case, the unit costs have increased by more than 40 percent.

Q And you also state that a large increase in rates is needed to cover this cost increase, is that correct?

A That is what I state.

Q Now, with respect to the 25.9 percent increase for basic presort BPM, you go on to state that, quote, "The higher than average increase is justified in part because the Postal Service is proposing to deaverage rates." Is that correct?

A That is what I say?

Q And just to clarify, the deaveraging of rates results from the introduction of the drop ship discounts?

A Yes, it does.

Q So, is the large increase requested for Bound Printed Matter due to the 40 percent increase in unit costs, or is it due to the deaveraging of rates resulting from the introduction of drop ship discounts?

A When you said the large increase, which particular increase were you referring to? Were you referring to the 18.1 percent?

Q Well, let's speak to both increases. Let's speak to the average increase, the 18.1 percent increase.

A No.

Q Let's speak to the 25.9 percent increase.

A The portion -- well, the 25.9 percent increase is a total increase, and as I state in the earlier part of the response to that interrogatory, there were a number of factors which led to the particular level of increase.

there

First of all, was the increase in the Bound Printed Matter unit costs. But a second element which works in the other direction was a decrease in the markup for Bound Printed Matter. And then there was the allocation of costs, part of which was the result of developing rates which included the drop ship discounts.

I should note that the 25.9 percent rate cell that you referred to was for origin entered mail, and so that would be mail that did not take advantage of the drop ship discounts. Okay. And, finally, what I mentioned was that this 25.9 percent is, in itself, a result of some mitigation. So, had we not mitigated the rates, those particular rate cells that you had me point out on the table would have been even higher.

Q Back to the 18.1 percent increase, you answered no to my question of whether it was due to the 40 percent increase in unit costs or the deaveraging of rates resulting from the introduction of drop ship discounts. If it is not due to either of those things, then what exactly is the average?

A I'm sorry, I must have misunderstood your question.

Q Okay.

A I thought that the "no" was to the second part of the question. The average increase -- what the drop ship

discounts

discounts—the impact that those had on the rates was, in fact, to take that 18.1 percent and deaverage it and allocate higher rates, rate increases to those elements that were not drop shipped and lower, in general, lower to those that were drop shipped. So, the 18.1 percent was the net result of the cost increases, less some of the mitigation resulting from the lowering of the markup for Bound Printed Matter that was testified to by Witness Mayes.

Q Now then the introduction of drop ship discounts, though, has exacerbated the increase for those mailers who could not use -- or who will not be able to use those drop ship discounts?

A The mailers who will not be able to use the drop ship discounts will have higher rates than they would have in the absence of the drop ship discounts.

Q And did you consider the effect of the proposed rates on those mailers?

A Yes, we did.

Q In what way?

A I think I have stated in my testimony, and in response to some of the interrogatories, that we took significant steps to mitigate the increase in rates that would result from the deaveraging. And, so, we did consider it. And that was a significant factor in determining the mitigation.

Q But let me ask you this, in response to part (d) of I guess AAP/USPS-37-24, you also state that "The higher the overall percentage rate increase, the greater is the likelihood that some mailers will perceive rate shock." What is rate shock?

A Well, when I came to work at the Postal Service about some year-and-a-half ago, the first day, they handed me a booklet, I think it is called Publication 32, which sort of has Postal-speak in it. It has the definitions of all kinds of things, and, frankly, I have even looked in there and it does not define rate shock. So, in this sense, my understanding of rate shock is something which has come from the general usage, as I have seen it in this intervening time.

I see rate shock as being a response or perception in the customers and the mailers which is sort of a distress caused by the perception that a rate has gone up rather more than they had initially planned.

Q So, clearly, an 18 percent increase would be rate shock?

A Well, the way I also think about rate shock is that I believe that customers are in some sense distributed over some kind of a continuum. There may be some customers for whom a very small change in rates would be perceived as rate shock, and there are some, I don't know the exact

percentage, we haven't done any studies on this, but there probably are some for whom even an 18 percent increase would not cause them rate shock.

Q Who are those mailers?

A As I said, we haven't studied that; we haven't surveyed any.

Q But 25.9 percent, that's not rate shock?

A Oh, I don't mean to testify that there are no customers who would perceive 25.9 percent as rate -- a 25.9 percent increase as rate shock.

And I don't think it is my testimony that we have removed every vestige of rate shock, although we have certainly tried to reduce the rates as much as we reasonably could, and tried to minimize the amount of rate shock.

Q Well, let's talk about mitigation. I keep hearing mitigation in your responses today, and in some of your written responses, but mitigation is not a cure for rate shock, necessarily?

A Well, that time, in responding to your question, tying that back to the -- my previous statement, there may be some customers who would perceive a very small change in rates, and perceive rate shock in a very small change in rates, so that a very substantial mitigation that left any level of rate increase at all may result in rate shock to those customers.

I do not -- I don't believe it has been my testimony that, as I say, we have removed all rate shock. We've tried to reduce it, so our efforts were -- mitigation is not removal; mitigation is trying to soften the blow of it.

And so we realized that some mailers will perceive some residual level of rate shock.

Q When you say that to some mailers, a small increase would be perceived as rate shock, where for others it would not be, I mean, in the context of the increases for BPM, when you're talking an average of 18.1, but in reality, for many mailers who will not be able to use the drop-ship discounts in the basic presort, which is a large group of mailers that are perhaps going to be subject to those rates, 25.9 percent would not --

I can't see how that would be a small rate increase. You're not saying it's a small rate increase?

A No, in fact, I believe that in my response, it may have even been a response to -- okay, yes, if you look at Part (d) of that same response, I say the Postal Service considers the 25.9 percent increase to be a large increase.

There's no doubt about it. We are dealing with a large increase.

As I said earlier, on average, this is the largest increase in this particular rate case.

Q So you would agree that the Postal Service expects or knows that there will be mailers who will experience rate shock because of this increase?

A The Postal Service believes that there will be some mailers who will still perceive some rate shock after our mitigation efforts, yes.

Q And there will be some mailers who do not perceive rate shock?

A I do not know the -- as I said before, I believe that mailers are distributed along the continuum, and I don't know the population at various points along that continuum.

Q I'll just ask you one more time: Is there any mailer that you know that you believe that a 25.9 percent increase would not be a rate shock? They would not experience --

A I have not studied or seen any study of mailers and their responses to the rate shock, so I -- to various levels, and so I do not have any information on that.

Q But the Postal Service believes it's possible?

A Oh, surely, that there are some, possibly -- I'm sorry, I want to make sure I understood --

Q Possible that some mailers won't experience rate shock at 25.9 percent?

A It certainly is possible.

Q I'd like to start again with your response to AAP-T37-24.

It is part (d) of that interrogatory response.

There you state that, "The Postal Service expects that a majority of BPM mail will take advantage of one or another of the new drop ship discounts." Is that correct?

A That is what it says.

Q On what basis do you make that statement?

A Our expectation is based upon the survey that was conducted of BPM mailers that looked at where these mailers are currently depositing their bound printed matter.

Well over 60 percent of these mailers do at present drop their mail at one of the three destination units, the BMC, SCF or DDU.

Our expectation was based on the -- we expected that this would continue to be the case.

Q And you are referring to Library Reference 109, the Bound Printed Matter Characteristics Study, is that correct?

A The Bound Printed Matter Mail Characteristics Study. It may be 109.

I don't know it by the number as ~~much~~ such. The one that was sponsored by Witness Crum.

Q I believe we are speaking about the same study.

A Okay.

Q And actually let's talk about that for a second.

Could you refer to your work paper, WP-BPM-1, please?

A I have it.

Q Okay, now there is a heading on the upper left hand side, "type of assumption" --

A Yes.

Q One of those headings is Volume Forecasts, below that, is that correct?

A Yes.

Q And the volume forecast in turn, they show the test year before rate volume for drop shipment of BPM mail, is that correct? I am referring to the numbers that follow I guess to Note 9.

It says drop shipment volume shares.

A Okay. Those are not identified as test year before rate items.

Q Could you identify those as -- what would you identify those as?

A Well, it says drop shipment volume shares.

Q Now corresponding to that is Note 9 and if I follow that correctly Note 9 says "Calculated from entry profile volume data in Library Reference L-109."

A Yes.

Q And again that is the Bound Printed Matter Mail

Characteristics Study?

A Yes, that verifies that it is 109. Yes.

Q And again that study was sponsored by Witness Crum?

A That is correct.

Q Now just for the record I would like to also refer you to your response to APP-T37-22.

A Okay. I have it.

Q There you state that, "To estimate the amounts of mail that would be entered at the various discounted rates I relied on the results of the BPM Mail Characteristics Study described in the testimony of USPS Witness Charles Crum. A copy of the results of this survey are presented in Attachment H to his testimony."

Is that correct?

A Yes, that is what it says.

Q Okay. So the volume forecast for drop ship Bound Printed Matter that are contained in your Work Paper 1 are based on Attachment H of Witness Crum's testimony?

A What is in Work Paper 1 are shares, not strictly volume, but they are shares -- volume shares, yes.

Q And you derive that from Bound Printed Matter Mail Characteristics Study?

A That's correct.

Q And Attachment H -- are you familiar with

Attachment H?

A To some degree.

MR. PRZYPYSZNY: May I approach the witness with a copy of Attachment H?

CHAIRMAN GLEIMAN: Yes, you may.

[Pause.]

BY MR. PRZYPYSZNY:

Q Now I have provided you with a copy of Attachment H, I believe Table 1 and Table 2 -- it is Attachment H to Witness Crum's testimony.

Have you seen this document before?

A Yes, I have.

Q Now my question to you is did you derive the volume shares as you state on your Work Paper 1, were they essentially derived from the figures that are represented here in Attachment H, which are the volume of different entry points of BPM mail?

A I derived them from Attachment H, Table 1, but the original version, okay? This has been revised since that was provided to me.

Q Just to clarify, Table 1 is the mail processing version?

A That's correct.

Q And the version I gave you, I believe it says "revised," is that correct?

A That is correct.

It is the April 14th revision.

Q Okay. So then you are aware that Attachment H was revised by Witness Crum on I believe April 14th, 2000.

A That's correct.

Q Now certainly then the revisions to Attachment H must now result in some changes to your work papers?

A When I became aware of the changes in Attachment H, I went to my work papers and substituted some of the revised numbers in and after examining their effects I came to the conclusion that it wouldn't -- it would be unlikely to have any substantial material effect on the bottom line, that is, the rates that I would propose.

It might have a minor effect on some of the preliminary rates, but not a material effect on the bottom line rates.

Q But there would be reductions I believe in drop ship volume shares, would there not be?

A A very -- well, what there would be is two opposing effects.

As I recollect, there would be a reduction in the amount of mail going to DBMC of about somewhere on the order of about 900,000 pieces and a offsetting increase in the amount going to DSCF of maybe about I think it was 400,000-500,000 pieces.

The net impact would have been around a half a million pieces.

Q So you said you have made these adjustments in work papers?

A No. I said I looked at that. What I did was I took these numbers and plugged them into the input spreadsheet that was -- perhaps I should clarify.

This Work Paper 1 is the input spreadsheet, so I put the numbers in there and examined the impacts. And the impacts were, when adjusted to recover the same revenue requirement, to bring the rates back up to -- or I came to the conclusion that if we were to ensure that we had the same revenue requirement, that the difference in the rates between the two would not be substantial or material.

Q So I just want to clarify, you have spreadsheets that shows changes to your workpapers regarding these volume estimates of drop shipped mail and the effect that it would have on, if any, that it would have on the proposals you have made for Bound Printed Matter?

A Well, I said I did that. I am not sure that it was even saved, but it is possible it was saved.

MR. PRZYPYSZNY: Mr. Chairman, I would like to make a request, to the extent that they have such documents, that we be provided with them. These are -- we believe that there are changes that result from Attachment H that may

affect the workpapers provided by Witness Kiefer, and it would be very important for us if they have done some sort of analysis to know what that analysis is and to see it ourselves.

CHAIRMAN GLEIMAN: Mr. Reiter, I can't see any reason why that material shouldn't be made available.

MR. REITER: We are just talking about plugging in some different numbers in the spreadsheets, if I am following things correctly?

CHAIRMAN GLEIMAN: Well, I am trying to follow things also.

MR. REITER: Is that what counsel is asking for?

CHAIRMAN GLEIMAN: There were changes in spreadsheets that affect the workpapers?

MR. PRZYPYSZNY: Let me clarify. There were changes from Attachment H of Witness Crum's testimony which deals with changes to the volume of entry points for Bound Printed Matter mail. Workpaper 1 has various line items which pertain to volume shares that the Postal Service relied on when they were determining how much Bound Printed Matter mail might be drop shipped. However, with the changes to Attachment H, it appears that those volume estimates have changed.

Now, I hear that they were stated to be insignificant, however, we don't know that. We need to

determine for ourselves whether they are significant or not.

CHAIRMAN GLEIMAN: We don't know whether they would be shocking changes or not.

MR. PRZYPYSZNY: We do not know.

CHAIRMAN GLEIMAN: Or what people would consider to be shocking changes. I think that if there are workpapers or spreadsheets that have changed, or should have changed as a consequence of changes in Attachment H to Witness Crum's testimony, that that material be made available.

MR. REITER: I am sure we can provide something responsive to that.

CHAIRMAN GLEIMAN: Okay. Seven day rule.

MR. PRZYPYSZNY: Thank you, Mr. Chairman.

BY MR. PRZYPYSZNY:

Q Just another, one more question about Library Reference 109.

A Sure.

Q Did you review the standard error estimates in that study, are you familiar with those?

A No.

Q I would like to also now refer you to response to AAP-T37-22.

A I have it.

Q Okay. There you state that the mail preparation

requirements for new drop ship discounts have not yet been determined as of this date.

A I see it.

Q And is that still a correct statement?

A As far as I understand it, it is still -- it stands, it is still the same.

Q If the Postal Service does not know at this time the exact nature of the mail preparation requirements for BPM drop shipped mail, how is it possible to estimate or know the exact number of mailers who will be eligible or be able to use such discounts?

A I am not sure that even if we knew what the mail preparation requirements were, that we would know the exact number of mail, or mail volume, or mailers who would be taking advantage. What I have here is our best estimate based upon the available data. I mean it has no pretensions that this is exact.

Q You would agree then it is possible that, particularly for the DDU and DSCF discounts, that the amount of volume that a particular mailer has is really going to determine in some ways whether they will make use of those discounts?

A That's possible.

Q Okay. I just have one more line of questioning. I would like to ask you a few questions about comparison to

Parcel Post. And I would like to know, are you aware of the history surrounding the DBMC, the DSCF and the DDU discounts for Parcel Post?

A Not very well. Vaguely.

Q Okay.

A Not very much.

Q If you can -- let's see if you can answer these questions, they are rather basic. Would you be able to confirm that the DBMC discounts for Parcel Post were introduced in R90-1?

A I believe that that was correct, but, again, I say that that is an exact detail I am not sure of.

Q Okay. And you would -- and the DSCF and the DDU discounts were not introduced until R97-1?

A I believe that is also correct.

Q But the point here is that there was sort of a staggering or a phase-in in Parcel Post of drop ship discounts, would you not agree?

A If you define phasing in that fashion, the idea of introducing one portion of the three, destination entry discounts, before the others, that did occur.

Q Now, if you would refer to your response to AAP-T-37-15. Do you have it?

A Yes, I have it.

Q There you were asked to address whether any

consideration was giving to phasing in drop ship discounts for Bound Printed Matter, much in the same way that such discounts were phased in for Parcel Post. In response, you stated that, "I was not a participant in this discussions, but it is my understanding that phasing was not considered." Is that correct?

A That is correct.

Q First, who were the participants in those discussions, if you were not?

A I am not sure who all the participants were, but I believe that they included Mohammed Adra, who was the witness for Bound Printed Matter in the last rate case. I believe also Witness Crum was present at these discussions. There may or may not have been other people, members of Postal management, but, as I say, I was not there at those meetings.

Q And those discussions, I am just a little bit confused by your response, there was discussion about phasing in or there was no discussion about phasing in?

A Given that the question asked whether any consideration was given to phasing, the response I obtained addressed whether consideration was given to that, and this is the substance of my knowledge on the subject.

To the extent to which it was discussed, and the difference between discussion and consideration, if there is

a difference, I'm not able to speak to that point. I was not at those.

Q I understand. What do you know then about why they were not considered?

A I don't know.

Q Okay. Let me ask you, would it not have been prudent to consider phasing in those discounts, particularly in the context of determining how to mitigate the rate increase faced by certain bound printed matter mail mailers?

Wouldn't such discounts have helped mitigate the rate increases for certain mailers, if they had been phased in?

Let me clarify it: Wouldn't the phasing-in of such discounts have mitigated the effect of the rate increase for some mailers?

A By phasing, you refer to the fact that some discounts would be offered -- would have been offered at one period in time?

Well, let me clarify with you. By phasing, do you mean that the Postal Service would have requested only one or only one or two of the three discounts that we are proposing in this particular docket, and then perhaps at some later rate case, we would have offered other discounts?

Or are you talking about, would we have requested several discounts -- all three discounts, but to be phased

in over a period of time?

Q Well, let's go back to the former, and maybe similar to the way that Parcel Post discounts were handled, maybe over one or two of the discounts in one rate case, maybe at a later rate case, after determining how those discounts had worked, introducing maybe further discounts?

And that's particularly in the context of de-averaging, which, as you have said, has caused some of the rate shock experienced by some of the BPM mailers, or will be experienced by them.

A The answer to that question really is an empirical question. If we had selected one of the three discounts to be offered, that would have been, in effect, some form of de-averaging.

I have not studied the issue as to the extent to which the push-up. Whenever we de-average -- and, in fact, some of the mailers are already providing the worksharing service that we are then going to try to get them a discount for.

For ~~We~~ we have a push-up and a push-down. Some rates get pushed up, and those who take advantage of the discount, their rates get pushed down.

It is not clear to me that given the -- if we had selected, let's say one, or one or two of the three discounts, whether the amount of push-up would have been

substantially less than the amount that is contained in the proposed rates.

In other words, the push-up and push-down -- in the example I was stating, it may be that there would have still been a significant push-up above the average rate for those people who are not taking advantage of the drop-ship discounts, whereas the people who would be taking advantage of the drop-ship discounts might have had a larger pass-through, a bigger discount.

Q But you did not explore this at all?

A I didn't explore that.

MR. PRZYPYSZNY: Mr. Chairman, I have no further questions.

CHAIRMAN GLEIMAN: Is there any followup?

[No response.]

CHAIRMAN GLEIMAN: Questions from the Bench?

[No response.]

CHAIRMAN GLEIMAN: It's time for redirect.

MR. REITER: A couple of minutes, please?

CHAIRMAN GLEIMAN: Certainly.

[Recess.]

CHAIRMAN GLEIMAN: Mr. Reiter?

MR. REITER: Mr. Chairman, we have no redirect.

CHAIRMAN GLEIMAN: If you have no redirect, then, Mr. Kiefer, that completes your testimony here today, and we

appreciate our appearance and your contributions to the record, and we want to thank you. You're excused.

[Witness Kiefer excused.]

CHAIRMAN GLEIMAN: I have an announcement concerning the schedule of witnesses for tomorrow's hearing. Yesterday there was some discussion of rescheduling Witness Campbell to take the witness stand at the end of the day.

Upon consideration and having spoken to outside counsel requesting oral examination, I have decided to adjust the schedule and hear witness Campbell first tomorrow morning.

We will then proceed to hear witnesses Mayo, Davis, and Kaneer, as scheduled. If it appears that any of these witness will only be subject to a minimal amount of cross examination, I will entertain a request tomorrow to further adjust the schedule to allow testimony not subject to extensive cross examination to be entered into the record early in the day.

You all have a good evening.

[Whereupon, at 3:27 p.m., the hearing was recessed, to be reconvened on Friday, April 28, 2000, at 9:30 a.m.]

ORIGINAL

Official Transcript of Proceedings

Before the

UNITED STATES POSTAL RATE COMMISSION

In the Matter of: POSTAL RATE AND FEE CHANGE

Docket No. R2000-1

VOLUME 27

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BEFORE THE
POSTAL RATE COMMISSION

- - - - - - - - - - - - - - - - - - - -X
In the Matter of: :
POSTAL RATE AND FEE CHANGE : Docket No. R2000-1
- - - - - - - - - - - - - - - - - - - -X

Third Floor Hearing Room
Postal Rate Commission
1333 H Street, N.W.
Washington, D.C 20268

Volume XXVII
Thursday, July 13, 2000

The above-entitled matter came on for hearing, pursuant to notice, at 9:39 a.m.

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HON. W.H. "TREY" LeBLANC, COMMISSIONER
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C O N T E N T S

E X H I B I T S

EXHIBITS AND/OR TESTIMONY	IDENTIFIED	RECEIVED
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P R O C E E D I N G S

[9:39 a.m.]

CHAIRMAN GLEIMAN: Good morning. Today we continue our hearings to receive the direct cases of participants other than the Postal Service in Docket R2000-1.

Does any participant have a matter that they would like to raise before we begin today?

If not, I will note that there are four witnesses scheduled to appear today, Witnesses Neels, Sellick, Hay, and Smith.

As I mentioned at yesterday's hearing, counsel for the Magazine Publishers of America and the Postal Service arranged to forego oral cross examination of Witness Hay, and it is my understanding that additional designated written cross examination for this witness will be designated at a future date in order to fulfill what arrangements have been made.

That being the case, we would ordinarily proceed to incorporate Witness Hay's testimony right now, but I don't believe the attorney who is handling that witness is here right now, so we will move on to our next scheduled witness.

Mr. McKeever, would you please introduce your witness?

MR. McKEEVER: Thank you, Mr. Chairman. United Parcel Service calls Dr. Kevin Neels to the stand.

CHAIRMAN GLEIMAN: Mr. Neels, before you settle in, if I could get you to raise your right hand.

Whereupon,

KEVIN NEELS,

a witness, was called for examination by counsel for the United Parcel Service and, having been first duly sworn, was examined and testified as follows:

CHAIRMAN GLEIMAN: Please be seated.

DIRECT EXAMINATION

BY MR. McKEEVER:

Q Dr. Neels, I have just handed you a copy of a document entitled "Direct Testimony of Kevin Neels on Behalf of United Parcel Service on Mail Processing Costs" and marked as UPS-T-1.

If you were to testify orally today here, Dr. Neels, would your testimony be as set forth in that document?

A It would.

MR. McKEEVER: Mr. Chairman, I move that the direct testimony of Kevin Neels on behalf of United Parcel Service on mail processing costs and identified as UPS-T-1 be admitted into evidence and transcribed into the transcript of today's proceedings.

CHAIRMAN GLEIMAN: Is there an objection?

Hearing none, counsel, if you would please provide two copies of Witness Neels' testimony to the court reporter, I will direct that that material be transcribed into the record and received into evidence.

[Direct Testimony of Kevin Neels, UPS-T-1, was received into evidence and transcribed into the record.]

UPS-T-1

BEFORE THE
POSTAL RATE COMMISSION

POSTAL RATE AND FEE CHANGES, 2000	:	DOCKET NO. R2000-1

DIRECT TESTIMONY OF KEVIN NEELS ON BEHALF OF UNITED PARCEL SERVICE ON MAIL PROCESSING COSTS

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BIOGRAPHY

My name is Kevin Neels. I am a vice president at the economic consulting firm of Charles River Associates, where I direct that firm's transportation practice. I have directed and participated in numerous research projects and consulting engagements dealing with a variety of issues in transportation economics. The aviation sector has been a particular focus of my work, and I have played key roles in a variety of projects dealing with air cargo market structure, airline pricing strategy, airline industry competitive structure, airport operations and finance, and passenger travel behavior. I have also addressed topics relating to pipelines, automobile manufacturing and distribution, and urban transportation.

On a number of occasions I have been asked to offer expert testimony in legal and regulatory proceedings. In many instances, my testimony has involved calculation of the proper measure of damages. These calculations have required extensive empirical investigations of business sales, revenues, and costs, with a particular emphasis on establishing the extent to which costs vary with changes in sales and production volumes. Often my work has involved the application of econometric analysis techniques. I have played a major role in estimating damages arising from antitrust violations, patent infringement, misappropriation of trade secrets, price-fixing, and contract violations. My testimony has addressed a number of different industries, including pharmaceuticals, medical devices, commercial aviation, durable consumer products, crude oil production and refining, and automobile manufacturing and sales.

In Docket No. R97-1, I offered testimony on behalf of United Parcel Service on the Postal Service's econometric study of the volume variability of mail-processing costs. I am also submitting testimony on that subject in this proceeding.

My curriculum vitae is attached as Appendix A.

PURPOSE OF MY TESTIMONY

I have been asked to comment on the study of mail processing labor hour variability introduced by Witness Bozzo in this case on behalf of the United States Postal Service. Because Dr. Bozzo's study is supported by and relies upon the testimony of Postal Service Witness Degen, I also review and analyze Mr. Degen's statements regarding the variability of mail processing labor hours.

In the first section of my testimony, I review the choices that the Postal Service faces as it attempts to deal with increases in mail volume, and I analyze the implications of those choices for the study of mail processing labor cost variability. This discussion provides background for my critique, which follows in the second section of my testimony, of the mail processing cost study presented by Dr. Bozzo.

After reviewing Dr. Bozzo's analysis, I review the operational and theoretical evidence for the presence or absence of economies of scale in mail processing. This section focuses on the testimony of Mr. Degen and on his argument that there are economies of scale in mail processing. I carefully analyze Mr. Degen's arguments, and I point out some serious flaws in them.

I then present alternative calculations of the volume variability of mail processing labor costs that correct for some of the flaws in Dr. Bozzo's study. I find that correcting

these flaws leads to estimates of mail processing cost variability that equal or exceed 100 percent.

The final section of my testimony presents recommendations about how mail processing labor costs should be treated in this proceeding. I also offer some suggestions about what an empirically and conceptually sound analysis of mail processing labor cost variability should look like.

HOW DOES THE POSTAL SERVICE RESPOND TO CHANGES IN VOLUME?

As Dr. Bozzo has noted, there was considerable controversy in Docket No. R97-1 about the length of time over which the response of mail processing labor costs to changes in volume should be measured. In that proceeding, I criticized Professor Bradley's study for taking an excessively short run view of the response of costs to changes in volume. Other witnesses agreed with this criticism.[1]

In response, Dr. Bozzo has modified Dr. Bradley's econometric specifications to permit adjustments to changes in volume to take place over a longer period of time. Although I believe this change is necessary, I am still troubled by the extremely narrow, short run view taken in the new analysis of how the Postal Service accommodates changes in mail volume.

Dr. Bozzo has noted that in R97-1, all parties accepted the proposition that the economic concept of the "long run" involved a period of time sufficient to allow a firm to adjust fully to changes in volume and factor prices.[2] Thus, the distinction between short

1. See, e.g., the testimony of OCA Witness Smith in Docket No. R97-1, Tr. 28/15835-36.
2. USPS-T-15, p. 17.

run and long run responses to changes in volume has to do essentially with the completeness of the Postal Service's response to a change in mail volume. Obviously, the more time one allows, the more complete that response will be.

Although this distinction between the short run and the long run has to do with the period of time over which a response takes place, one can also analyze this question in functional terms. A change in volume can affect many different aspects of postal operations and trigger decisions in many different areas. The difference between a short run response to an increase in volume and a long run response has to do with which aspects of postal operations are held constant, and which are allowed to vary.

In order to place Dr. Bozzo's results in perspective, it is helpful to review the various ways in which the Postal Service actually responds to increases in the volume of mail to be processed. The record in this proceeding provides considerable evidence regarding the nature of that response and of the economic decisions and tradeoffs that it entails.

(1) Staffing Level Changes

Dr. Bozzo's study focuses on the response of staffing levels to changes in volume. As he notes, decisions regarding mail processing staffing levels occur over two distinct time frames.[3] The first is measured in hours, and involves redeployment of the existing staff among the different mail processing activities present in the plant. In this context, plant supervisors respond to stochastic, or unpredictable and random, variations in the volume and mix of mail to be sorted. To some extent, adjustments can

3. USPS-T-15 at 18.

be made to accommodate growth in volume, although over a very short time frame the available options may be limited.[4]

The second adjustment described by Dr. Bozzo involves changing the size or composition of the staff. There are substantial transaction costs associated either with the hiring of new staff, or with the downsizing, transfer, or redeployment of existing staff. For this reason, these latter decisions, Dr. Bozzo says, can take up to a year to implement.[5]

(2) Automation and Mechanization

Another broad area of decisionmaking that is heavily affected by growth in mail processing volume involves capital expenditures on mail processing equipment. As Postal Service Witness Kingsley makes clear, decisions regarding the installation or upgrading of mail processing equipment are often driven by the need to accommodate growth in volume.[6] Actions taken to increase mail processing capacity can take a number of different forms. For example, existing equipment can be upgraded to enhance its capacity; new machines can be installed; and different types of MODS activities can be added to mail processing plants. As the record in this proceeding amply indicates, all of these changes have taken place since the filing of the last general postal rate case.

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4. To accommodate a sudden increase in volume a supervisor can ask workers to defer time off, authorize extra overtime, monitor workers more closely to minimize unproductive downtime, or alter work practices in an effort to increase productivity.

5. USPS-T-15, p. 18.

6. See, e.g., USPS-T-10, pp. 12-15, 31-32.

The testimony of Ms. Kingsley describes numerous instances in which existing equipment has been upgraded. Just a few quotations are sufficient to provide a good sense of the nature of the Postal Service's activities in this area:

- "This past year all of the FSM 881s were retrofitted with OCRs that can read the addresses on flats."[7]
- "A total of 875 MLOCRs are deployed. No additional deployments are planned, but several enhancements since Docket R97-1 have been added, including a Grayscale Camera, a co-directory lookup, and a co-processor. The Grayscale Camera facilitates better image capture (256 shades of gray instead of just black and white) while the co-directory and co-processor augment the address matching process through redundancy. These enhancements have improved the overall encode rate of the MLOCR and reduced the amount of mail that obtains a barcode through Remote Bar Coding."[8]
- "The addition of the Mail Cartridge System (MCS) to the DBCSs is currently planned to commence near the end of FY 2001 into FY2002. The MCS will eliminate sweeping and second pass ledge loading for DPS processing."[9]
- "The SBPS Feed System has been a recent addition to the SPBS. These feed systems consolidate all the induction lines into a centralized network capable of transferring mail from all types of mail containers and transporting the contents on mechanized conveyors to the induction/keying consoles."[10]

Augmentation of an existing mail processing operation through the installation of additional equipment or the upgrade of existing machinery is also a frequent occurrence. Table 1 shows the average number of machines per site for a number of

7. USPS-T-10, p. 10.
8. USPS-T-10, p. 4.
9. USPS-T-10, p. 9.
10. USPS-T-10, p. 20.

important mechanized MODS activities for the period from 1993 through 1998. It shows substantial increases in a number of different areas.

Table 1

Multi-Machine Installations and Changes in Sorting Technology Over Time
Average Number of Machines per Site

MODS Group	Equipment Description	PCN	1993	1994	1995	1996	1997	1998
Metered Cancellations	Culling Machine	400000	1.436	1.381	1.398	1.418	1.487	1.454
Metered Cancellations	Cancelling/Facing Machine	401020	5.588	5.945	4.487	4.529	4.581	5.976
LSM	Letter Sorting Machine, Multi Pos	910000	7.012	7.727	7.698	7.484	5.284	3.603
FSM	Flat Sorter Machine	920000	5.631	8.614	9.546	9.621	9.693	11.329
SPBS	Parcel Sorting Machine	930000	3.714	2.640	1.463	1.576	1.638	1.932
SPBS	Small Parcel/Bundle Sorter System	930040	4.016	4.081	3.922	4.078	5.000	5.576
BCS	Bar Code Reader	950000	15.780	19.339	18.490	17.847	9.716	9.648
BCS	Small Bar Code Sorter (SBCS)	950010	7.323	7.411	7.400	7.885	9.878	17.029
BCS	Delivery Bar Code Sorters (DBCS)	950020	6.743	14.964	20.015	24.773	25.261	26.621
OCR	Reader, Optical Character	960000	2.950	3.440	3.574	3.352	4.000	4.638
OCR	Reader, Optical Character (OCR/CS)	960010	5.715	6.462	7.031	8.048	9.797	18.613

Notes and Sources:

1. Data from MPE93.txt - MPE98.txt, provided in USPS-LR-I-244.
2. Site-specific equipment counts are average over sites that have some equipment.
3. Appendix B presents average number of machines per site for all PCN codes.

Yet another way in which the Postal Service accommodates increases in mail volume is by establishing automated or mechanized processing activities in plants where these activities had previously not been present. These actions are manifested in changes in the mix of MODS activities present at a site. According to Dr. Bozzo's data, activity mix at a plant is highly dynamic. Table 2 summarizes changes over time in the mix of activities present in the processing plants in Dr. Bozzo's sample. An activity is regarded as "present" during a time period if positive values are reported for pieces handled.

Table 2

Changes Over Time in the
Percent of Sites Reporting Each Activity Mix in the Fourth Quarter of Each Year

Letter Sorting

Activity Present?				1993	1994	1995	1996	1997	1998
OCR	LSM	BCS	Manual Letters						
yes	yes	yes	yes	85.98	87.23	87.23	81.31	39.25	9.35
yes	yes	yes	no					0.31	
yes	yes	no	yes	0.93					
yes	no	yes	yes	4.05	4.98	6.54	12.15	53.58	75.39
yes	no	yes	no						0.62
yes	no	no	yes	0.62	0.62	0.31	0.31		
no	yes	yes	yes	1.25	1.56	1.56	1.25	0.93	3.43
no	yes	no	yes	0.93	0.93	0.31			
no	no	yes	yes	2.49	1.87	2.18	2.80	3.74	8.72
no	no	yes	no				0.31	0.31	0.31
no	no	no	yes	0.93	0.62	0.62	0.62	0.62	0.62
no	no	no	no	2.80	2.18	1.25	1.25	1.25	1.56

Flat Sorting

Activity Present?		1993	1994	1995	1996	1997	1998
FSM	Manual Flats						
yes	yes	75.08	75.70	75.70	74.77	74.77	76.95
yes	no				0.31	0.62	1.56
no	yes	22.12	22.12	23.05	23.68	23.05	19.94
no	no	2.80	2.18	1.25	1.25	1.56	1.56

Parcel Sorting

Activity Present?		1993	1994	1995	1996	1997	1998
SPBS	Manual Parcels						
yes	yes	17.76	23.36	24.30	23.68	32.09	26.48
yes	no	4.05	6.85	7.48	11.21	9.03	13.08
no	yes	68.22	62.31	62.93	60.12	52.96	54.83
no	no	9.97	7.48	5.30	4.98	5.92	5.61

Priority Mail Sorting

Activity Present?	1993	1994	1995	1996	1997	1998
yes	75.39	78.50	80.37	80.06	81.31	75.08
no	24.61	21.50	19.63	19.94	18.69	24.92

Notes and Sources:

1. Data from reg9398.xls, provided in USPS-LR-I-107.
2. At most 16 combinations of activities are possible. Over the period of investigation, no more than 13 combinations are observed, and no more than 12 occur in any fourth quarter.

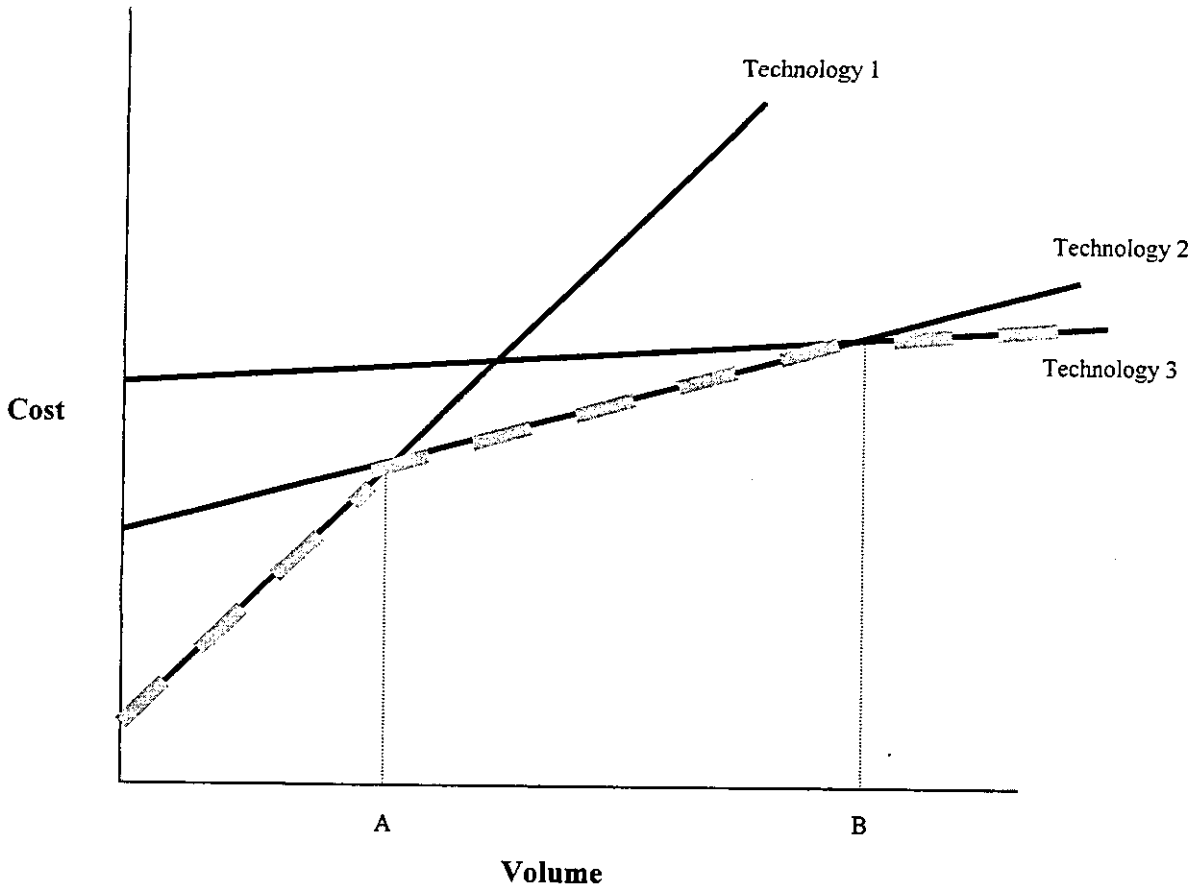
Four MODS activities are involved in the processing of letters: OCR, LSM, BCS, and Manual. These four activities yield 16 possible combinations of activities, of which only twelve are actually observed at the end of a year. The most noteworthy trend in letter processing is the gradual shutdown of letter processing machines. By the end of the period shown, these are quite rare. Apart from this change, trends are difficult to discern. A number of implausible combinations occur sporadically and at low frequencies. For example, instances appear in which a site reports activity for an optical character reader without a bar code sorter being present. Such combinations probably reflect data errors consisting of either failure to report numbers for activities present and in operation, or reporting numbers under the wrong codes. I will discuss the subject of data errors in more detail below.

Flats are processed either manually or with the help of sorting machinery. Over the period we see increasing reliance on mechanized processing, and a gradual decline in the proportion of sites relying entirely on manual processing. The small number of sites showing only mechanized processing may once again represent data errors.

The picture we see in connection with parcels mirrors that seen in connection with flats, but with a more marked trend over time. The number of sites relying solely on manual processing declines substantially over the period, and, obviously, there is a corresponding increase in the number of sites with mechanized processing.

A cost minimizing provider of mail processing services can be expected to alter systematically its procedures for processing mail in response to changes in mail volumes. The economic rationale behind such changes is shown graphically in Figure 1.

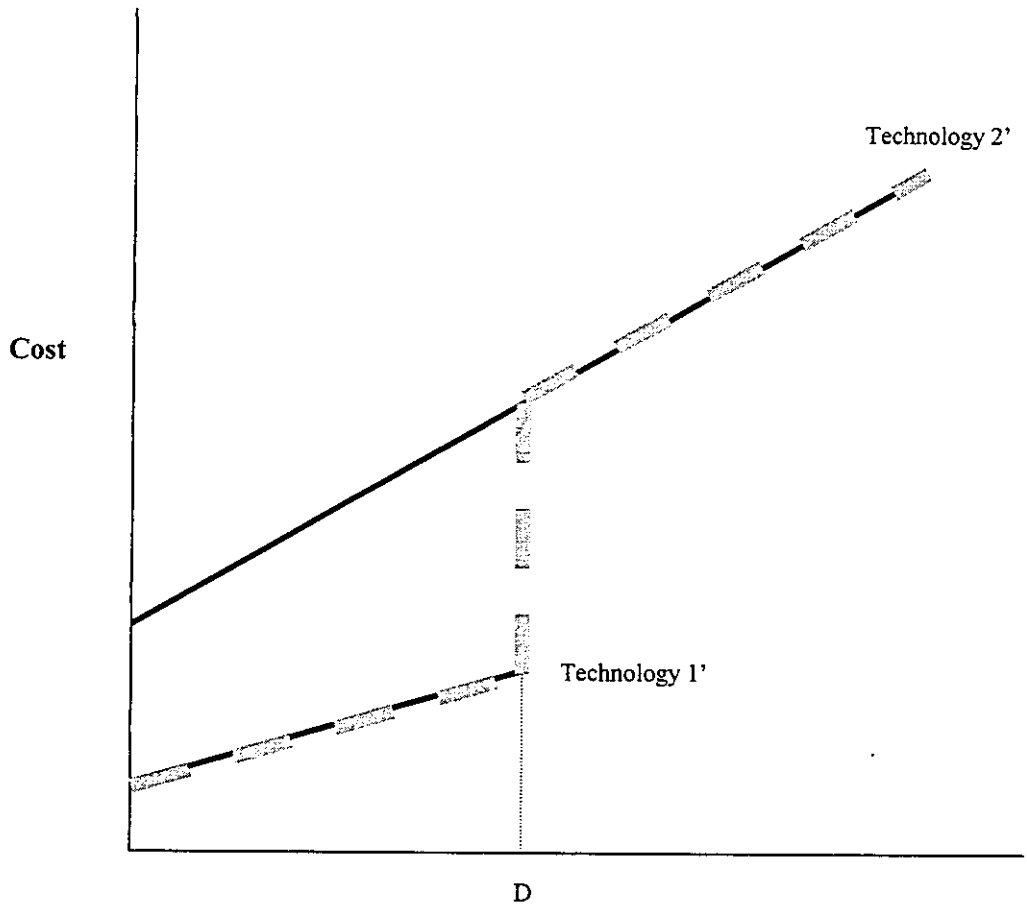
Figure 1: Technology Switching I



This figure depicts the costs of three different idealized mail processing technologies. In this example, a processing technology is characterized by a fixed setup cost that is independent of the volume of mail processed, and a variable component that reflects a constant per piece processing cost. Technology 1 has low setup costs, but high variable costs. Technology 3 is the reverse, with high fixed costs and lower variable costs. Technology 2 occupies an intermediate position. For mail volumes between 0 and A, technology 1 has a lower total cost than either of the other two technologies. For volumes falling in the range from A to B, technology 2 is the cost minimizing choice. For volumes above B, technology 3 is optimal. The final relationship between costs and volumes that results from these technology choices is shown by the dotted line.

The example shown in Figure 1 depicts a situation in which costs rise less than proportionately with volume, but this result is by no means guaranteed. Figure 2 depicts a different situation in which technology 1' has low costs, but can accommodate only volumes less than or equal to D . To accommodate volumes above D, one must switch to a different and higher cost technology that is labeled 2' in the figure. Such a situation could easily arise as the result of a reliance by technology 1' on a scarce factor of production. In this example, the final relationship between costs and volumes is shown by the dotted line, which depicts a situation in which there are diseconomies of scale.

Figure 2: Technology Switching II



In fact, the available data show a systematic relationship between the mix of activities present at a plant and the volume of mail that it processes. I have conducted a series of simple econometric analyses of this relationship for flats and for parcels. The results of these analyses are shown in Table 3.

Table 3
Automation in Response to Volume Growth

Dependent Variable = 1 if Facility has FSM Technology	Logit	Conditional Logit Fixed Effects
ln(TPH)	5.842	7.407
	(0.241)	(1.601)
Pseudo R2	0.627	
Sample	4843	168

Dependent Variable = 1 if Facility has SPBS Technology	Logit	Conditional Logit Fixed Effects
ln(TPH)	3.240	3.347
	(0.112)	(0.330)
Pseudo R2	0.800	
Sample	3912	691

Notes and Sources:
1. Data from reg9398.xls, provided in USPS-LR-I-107.
2. Models estimated using Maximum Likelihood. Standard errors shown in parentheses.
3. The logit model is estimated on the full analysis sample and the probability of having a technology is a function of ln(TPH) and a constant.
4. The conditional logit uses only those panels in which technology switching occurs (i.e. panels where the dependent variable is neither all zeros or all ones).

The top panel of Table 3 shows results obtained by estimating binary logit models in which the dependent variable indicates whether or not flat sorting machinery is present at the site in the time period in question, and the independent variable is the natural log of the number of piece handlings in flats-related MODS pools. The first column shows the results obtained by fitting a simple binary logit model. The second

column shows the results obtained in a conditional logit model that includes site-specific fixed effects terms. The inclusion of fixed effects terms essentially sweeps cross-sectional comparisons out of the data, and relates the installation of flat sorting machinery at a site to trends in that site's flats volume. Both models show a highly significant relationship between volume and the decision to mechanize.

The bottom panel of Table 3 shows comparable results for parcel sorting. Here too, we find in both models a highly significant relationship between volume and the decision to install SPBS equipment.

The findings shown in Table 3 result from the expenditure of a great deal of econometric firepower to answer what is really a fairly simple and obvious question. It should come as no surprise to anyone involved in this proceeding that mechanization decisions are closely related to mail volume, and that mechanization is one of the important ways in which the Postal Service accommodates growth in mail volume.

(3) Construction, Expansion, or Modification of Mail Processing Plants

In his direct testimony, Mr. Degen dismisses a comment I offered during R97-1 in response to a question by Chairman Gleiman regarding the possibility that one of the ways in which the Postal Service might respond to growth in volume would be by building new processing plants.[11] Mr. Degen argues that this would not be a "rational response," because "the additional workload caused by an additional piece is

11. USPS-T-16, p. 17.

necessarily dispersed throughout the network."[12] The testimony offered by other Postal Service witnesses appears to contradict Mr. Degen's assertion.

Ms. Kingsley provides a detailed description of the Postal Service's approach to space planning in which she identifies the acquisition of new space as a measure of last resort:

> The ideal configuration for distribution is centralized distribution within an existing plant, utilizing existing plant space to the fullest. When existing plant space is inadequate, the second option is to decentralize some processing operations into existing postal space outside of the plant. The third option is to change mail flows to reduce workload and thus space required for the workload. New processing space is obtained only as a last resort.[13]

Ms. Kingsley goes on to describe in more detail the ways in which the Postal Service alters or decentralizes its operations in an effort to maintain operations within its existing network of facilities. She concludes this discussion by flatly stating: "When these options still do not produce enough space, new space must be obtained."[14]

Dr. Bozzo has testified that his analysis includes five new facilities that came on line during the 6 year period covered by his data, plus another eight existing facilities that were added to the MODS system, suggesting a change in the scale of those facilities. He states his understanding that "additions of facilities to MODS are most commonly related to expansions of the facilities to include automated sorting

12. USPS-T-16, p. 17.
13. USPS-T-10, p. 33.
14. USPS-T-10, p. 33.

equipment."[15] Thus, according to Dr. Bozzo, either five or thirteen new facilities were added to the system, depending upon how one defines "new."

Even Mr. Degen describes the construction of new processing plants by the Postal Service to accommodate changes in volume:

> This is not to say that the Postal Service network is static. It has evolved over time as the nation has grown and its population distribution has changed, and as mail processing technology has progressed. It continues to evolve, albeit slowly. For example, between FY1993 and FY1996 (the R94-1 and R97-1 Base Years) the Postal Service added two new 3-digit zip codes, in addition to the 912 in use previously. During this same period it added five new mail processing plants – averaging just over one plant a year – each built to handle a portion of an existing plant's service territory. During this same period it also replaced 20 existing plants with new ones, and expanded or rehabilitated another three.[16]

Mr. Degen is correct in emphasizing the interconnectedness of the Postal Service's network, and the constraints that places on the ability of the Postal Service to build and integrate new plants. However, the record demonstrates clearly that the Postal Service has been successful in overcoming those constraints. Mr. Degen's assertion that the construction of new plants plays no part in the response of the Postal Service to an increase in mail volume is simply wrong.

CRITICISMS OF DR. BOZZO'S ANALYSIS

(1) Overview

Dr. Bozzo presents the results of a statistical analysis aimed at measuring the extent to which mail processing labor costs vary with volume. Historically, the Commission has held that mail processing labor costs are 100 percent volume variable.

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15. Response of Bozzo to UPS/USPS-T15-18, Tr. 15/6389.
16. USPS-T-16, pp. 14-15.

In other words, the treatment of these costs has reflected the Commission's view that they vary in direct proportion to changes in the volume of mail being processed. In R97-1, the Postal Service introduced a new econometric study purporting to show that the volume variability of mail processing costs was well below 100 percent. This study was heavily criticized and was ultimately rejected by the Commission in that case. Dr. Bozzo's updated version of Professor Bradley's R97-1 study again finds that the volume variability of mail processing labor costs is well below 100 percent for many cost pools, although Dr. Bozzo's variabilities are generally higher than those found by Professor Bradley.

Dr. Bozzo begins his analysis by discussing the Commission's and intervenors' criticisms of the R97-1 study. He discusses the concerns expressed in R97-1 about the appropriate "length of run" for such a study, and about selection bias due to Dr. Bradley's use of ad hoc sample selection criteria. Dr. Bozzo's numerous changes to Dr. Bradley's model specifications, data "scrubbing" procedures, and data sources reflect Dr. Bozzo's efforts to respond to criticisms of the original study. Nonetheless, Dr. Bozzo has in large part accepted Dr. Bradley's original conceptual and empirical framework.

Following Dr. Bradley's R97-1 approach, Dr. Bozzo specifies separate translog regression equations for each of a number of MODS cost pools. Once again, he takes labor hours rather than costs as the dependent variable for his equations, and "piece handlings" rather than mail volume as his cost driver.[17] He retains the time trend and

17. Dr. Bozzo has selected a cost driver that is slightly different from that used by Dr. Bradley. For a number of the activities he examines, he uses Total Pieces Fed ("TPF") in place of the Total Piece Handlings ("TPH") measure used by Dr. Bradley. The latter measure counts the number of mail pieces successfully

manual ratio variables included in Dr. Bradley's original specification. To these he adds a number of new regressors: a facility-level measure of installed capital; a measure of the number of delivery points served by the facility; and a measure of the wages paid to mail processing employees. Dr. Bozzo's study is also much narrower in scope than Dr. Bradley's R97-1 investigation. In contrast to the previous study, Dr. Bozzo's testimony presents variability results only for ten direct MODS activities. No results are presented for MODS allied activities, or for BMC mail processing activities.

Dr. Bozzo finds volume variabilities to be significantly lower than 100%, suggesting that mail sortation exhibits increasing returns to scale. His elasticity estimates are lowest for the manual operations, Manual Parcels, Manual Flats, and Priority. They are highest for the automated/mechanized operations, Optical Character Reader ("OCR"), Letter Sorting Machine ("LSM"), Bar Code Sorter ("BCS"), Flat Sorting Machines ("FSM"), and Small Package and Bundle Sorter ("SPBS"). Curiously, Dr. Bozzo's variabilities indicate that manual operations exhibit greater economies of scale than automated operations.

Unfortunately, Dr. Bozzo dismisses many serious concerns raised with respect to Dr. Bradley's R97-1 study. Despite Dr. Bozzo's vigorous defense of the quality of the MODS data, the evidence presented in his testimony again provides ample reason for continuing concern about the errors that infect the data and the effects of those errors on variability estimates. Moreover, Dr. Bozzo continues to rely on piece handlings as a

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sorted, while the former includes the total number of pieces fed into the machine. Thus, the two measures differ by the number of pieces rejected by the machine.

cost driver, despite the concerns raised in R97-1 regarding the ability of this measure to serve as a proxy for volume. As I demonstrate below, these concerns are well founded.

In addition, Dr. Bozzo continues to analyze each activity in isolation, largely ignoring the fact that they are housed in the same facilities, operated in many instances by the same personnel, and in many cases serve as actual or potential substitutes for one another. One of the arguments advanced by Dr. Bozzo in support of his decision to base his analysis on each MODS cost pool in isolation is that "the cost pools can be defined such that they represent distinct (intermediate) production processes with separate, identifiable, and relatively homogenous inputs (e.g., labor services) and outputs (processed pieces, or TPF)."[18] He asserts, in effect, that each of the activities he has defined can be studied in complete isolation, ignoring entirely its interactions with other activities carried out within the same mail processing plant. He offers no evidence in support of this assertion. In fact, it is inconsistent with the descriptions of mail processing operations provided by the Postal Service's operational witnesses.

Mr. Degen and Ms. Kingsley both testify that staffing levels in opening units are driven by the need to get mail into downstream operations in order to carry out necessary processing within the available time window.[19] This example demonstrates one particular way in which different MODS activities interact and influence one another. It is not difficult to find other such examples.

Many facilities possess parallel processing operations for particular mail streams. Letters, flats, and parcels can all be sorted manually, or with the aid of automated

18. USPS-T-15, p. 43.

19. USPS-T-16, p. 47; USPS-T-10, pp. 28-32.

equipment. It seems highly unlikely that the operations of these parallel processing activities would not be affected by the way in which mail is allocated between them. Mr. Degen describes the highly dynamic way in which these allocation decisions are made.[20] Mail can be sorted manually because that is the only type of sortation carried out within the plant, because the physical characteristics of the mail do not lend themselves to mechanized processing, because the automated equipment is being used to full capacity, or because a batch of mail has arrived too late in the shift to accommodate the setup times needed for mechanized processing. It is reasonable to expect substantial differences in the operation of the manual sorting activity depending upon which of these reasons motivates its use.

Many of the mail streams within a plant undergo sequential processing steps. The layout, staffing, and organization of these steps must be determined in such a way as to provide for the smooth and efficient flow of mail through the entire system. Uncertainties in when and how much mail arrives at the plant will create at times temporary inventories of unprocessed mail. Does it make sense to process mail immediately, or to hold it until enough accumulates to permit efficient batch processing? This decision depends upon the total volume of mail to be processed, and the capacities and processing rates of all of the stages in the processing stream.

It is also reasonable to expect interactions between activities simply because of the fact that they are housed in the same plant and rely upon a shared workforce. In a crowded facility, a high volume of mail in one activity could create congestion that affects the operation of otherwise unrelated activities. A drop in volume for one mail

20. USPS-T-16, pp. 18-19.

stream could create a temporary labor surplus in the plant that could alter the mix of automated and manual processing for a different mail stream.

For all of these reasons, I would expect the different sorting activities within a plant to interact in numerous ways that Dr. Bozzo's study simply ignores.

Finally, although Dr. Bozzo has attempted to interpret his cost equations as labor demand functions, the microeconomic foundations for his analysis remain incomplete and confused. Dr. Bozzo's analysis treats as "control variables" many aspects of mail processing that in fact are under the control of the Postal Service and that can be expected to change in response to a shift in volume. In many cases this treatment is implicit. In some cases it is stated explicitly, and then generally defended with an assertion that the changes in question occur over too long of a time to be relevant. Rarely does he provide evidence to support such assertions. Often the available evidence contradicts them.

A few examples suffice to make the point:

- His analysis includes as an explanatory variable an index of the amount of capital at a facility. His variability estimates are thus calculated holding capital investment constant, whereas the amount of capital investment in a particular plant is influenced by the volume of mail handled by that plant.
- His analysis is carried out conditional on a MODS activity being present at a facility. The decision to install a new activity at a facility occurs outside of his analytical framework, even though that decision is often influenced by the amount of volume which the plant handles.
- In a similar way, his analysis is carried out conditional on the facility itself being present. Thus, construction of new facilities occurs outside of and is ignored by his analysis.

For all of these reasons, I remain as skeptical of Dr. Bozzo's results as I was of Dr. Bradley's R97-1 results. However, while my earlier criticisms of Dr. Bradley's work

were largely conceptual and methodological, I am now able to present empirical results documenting the validity of my concerns and the infirmities in Dr. Bozzo's approach.

(2) Dr. Bozzo Has Not Allayed Concerns About MODS Data Quality.

Dr. Bozzo admits that there exist large errors in the MODS data, particularly with those relating to operations. However, he dismisses the concerns expressed in R97-1 over data quality by arguing first that the noise in the MODS data are acceptable relative to other survey data, and second that, in any case, the effects of measurement errors are attenuated by the inclusion of site-specific fixed effects in the estimation. I address each of these points in turn.

Dr. Bozzo argues that overall data quality is acceptable by citing a survey of the statistics literature that describes data with errors of one to ten percent as "routine data," and data with a few percent errors as "average quality" data.[21] He explains that "[e]xcluding the manual parcels and manual Priority Mail operations, . . . [his threshold and productivity scrubs] identify between 0.6 percent and 7.1 percent of the raw MODS observations as erroneous."[22] However, as he implies, a significantly higher proportion of observations on manual operations are identified as erroneous by his threshold and productivity scrubs. In particular, as Table 4 shows, 13 percent of the manual flats observations, 22 percent of the manual parcels observations, and 15 percent of the Priority Mail observations in Dr. Bozzo's "non-missing" samples are erroneous. Moreover, these numbers actually understate the degree of error because they do not count as erroneous those observations with erroneously recorded zero piece

21. USPS-T-15, p. 106.

22. USPS-T-15, p. 106.

handlings.[23] Inspection of Dr. Bozzo's data suggests that the problem of falsely recorded zeros is widespread for a number of the MODS activities he examines.

Table 4
MODS Data Quality

MODS Group	Non-Missing	Threshold	Threshold and Productivity	% of Observations Exhibiting Gross Data Errors
BCS	6885	6883	6780	1.53%
OCR	6644	6639	6495	2.24%
FSM	5442	5442	5424	0.33%
LSM	5156	5150	5127	0.56%
Manual Flats	6914	6914	6033	12.74%
Manual Letters	6914	6914	6667	3.57%
Manual Parcels	5835	5625	4545	22.11%
Priority	5717	5644	4864	14.92%
SBPS	2244	2239	2213	1.38%
Metered Cancellations	6746	6718	6579	2.48%

Notes and Sources:

1. Data from USPS-T-15, p. 107.
2. Because Dr. Bozzo records both true missing values and bad data as zeros, these data underestimate the percent of gross errors.

(a) Data Problems in the Manual Parcels Series

A careful look at the manual parcels series for piece handlings suggests the presence of serious data errors. In particular, this series appears to exhibit frequent gaps in reporting. I define a "gap" in reporting as a pattern in the data series in which a period with zero piece handlings for a particular site is both preceded by and followed by positive entries. Consider for example Site # 6, which shows positive piece handlings for Manual Parcels from the first quarter of 1993 to the first quarter of 1994, zero piece handlings from the second quarter of 1994 to the second quarter of 1995,

23. In Dr. Bozzo's dataset, a zero can in fact signify either a true zero – a situation in which labor hours or piece handlings were equal to zero -- or a missing value. Missing values correspond to situations in which the activity in question was present and in operation but, for some unknown reason, the data were not entered into the system.

and then positive piece handlings again. Taken at face value, these data would have the unrealistic implication that Site #6 did not process any mail through Manual Parcels for one calendar year.

In response to interrogatory UPS/USPS-T-15-13, Dr. Bozzo stated that MODS data for Manual Parcels are manually logged. Tr. 15/6387. The logging process is labor intensive, and as a result, it appears that data are often simply not entered into the system. For Site #6 in particular, Dr. Bozzo indicates that the gaps in the data series correspond to periods where data for the SPBS and Manual Parcels MODS activities were commingled and reported together as data for the SPBS MODS group. This suggests that both the SPBS and the Manual Parcels data series are individually noisy, and that the distinction between the two pools cannot be relied upon. Combining them into a single Parcels category is a way of dealing with the reporting error problem.

As shown in Table 5, a systematic search for gaps in the manual parcels series revealed a total of 46 gaps, with an average gap length of five quarters, suggesting a total of 230 observations with gross data error. In this same series, Dr. Bozzo's threshold and productivity scrubs detect the presence of another 1,290 observations with data errors. Moreover, given the nature of the manual data entry problems cited by Dr. Bozzo, it is possible that these series may contain other errors that are undetectable by the simple editing screens he uses.

Table 5

Intermittent Gaps in TPH

MODS Group	Number of Gaps	Average Gap Length
BCS	2	8
OCR	6	2
FSM	6	5
LSM	15	2
Manual Flats	4	2
Manual Letters	5	2
Manual Parcels	46	5
Priority	96	3
SPBS	6	6

Notes and Sources:

1. Data are from reg9398.xls, provided in USPS-LR-I-107.
2. A gap in the TPH series is defined as a series of non-positive values both preceded and followed by positive values.

(b) Data Problems in the Priority Mail Series

A careful look at the Priority Mail series for piece handlings also suggests the presence of serious data errors. In response to UPS/USPS-T-15-13, Dr. Bozzo stated that MODS data for Priority Mail, like Manual Parcels, are manually logged.[24] For Site #6, he explains that a gap in the Priority Mail data series reflects "a period prior to the filling of a related in-plant support position."[25]

A systematic search for gaps in this series revealed 96 gaps (see Table 5, above), with an average gap length of three quarters, suggesting a total of 288 observations with data errors. In addition, Dr. Bozzo's threshold and productivity scrubs detect the presence of another 853 observations with data error. Furthermore, as with

24. Tr. 15/6387.

25. Tr. 15/6387-88.

Manual Parcels, these data series are likely to have other errors that are undetectable by simple screens.

(c) Implications for Econometric Results

Measurement error in an explanatory variable of a linear regression model renders the estimator inconsistent and frequently biases coefficient estimates towards zero. Dr. Bozzo himself explains that the likely reason his variabilities for Manual Parcels and Priority Mail are considerably higher than those reported by Dr. Bradley in R97-1 is that the newer results reflect the use of tighter selection criteria to eliminate unusable observations. It is clear, however, that errors remain in Dr. Bozzo's data, despite his use of tighter selection criteria. This fact suggests that the relatively low volume variabilities he reports for the manual operations may be attributable to this remaining measurement error rather than to true economies of scale.

(d) Dr. Bozzo's Fixed Effects Estimator Does Not Solve the Data Quality Problems.

Although Dr. Bozzo concedes that the manual piece handling data series (at least for parcels) continue to be subject to measurement error even after his scrubs, he argues that the nature of the measurement error is such that it is not of concern. In particular, he asserts that the measurement error is likely to vary systematically across sites,[26] and he claims that therefore the inclusion of site-specific effects in the panel fixed effects model attenuates this errors-in-variables problem. Dr. Bozzo says, ". . . models such as fixed effects . . . are completely effective at controlling for omitted factors associated with sites and/or time periods, when panel data are available."[27]

26. USPS-T-15, p. 85.

27. USPS-T-15, p. 104.

While Dr. Bozzo's reasoning may be true for site-specific errors that are fixed over time, there is good reason to believe that, in fact, the site-specific errors change over time.

To understand why site-specific errors in data entry may change over time, consider again the case of parcel sorting. One type of error found in the data is the inadvertent commingling of Manual Parcel piece handlings and the SPBS piece handlings data. This type of error is possible only if the facility operates an SPBS sorting machine. In fact, 26 percent of sites acquired SPBS technology at some point after the start of the analysis sample. Certainly, for these sites any site-specific error that commingles data for SPBS and Manual Parcels begins only after the adoption of the mechanized technology. More generally, it is plausible to expect that at a given facility the burden of manually logging data increases over time with mail volume.

The piece counts for many manual activities are derived by weighing mail and applying national conversion factors to convert these weights into item counts. As Dr. Bozzo notes, local variations in weight per piece would cause this estimation process to yield erroneous results.[28] He notes that weight per piece will vary from site to site, but he ignores the fact that it may also vary over time. A trend over time in weight per piece will impart a false trend in the estimates of piece handlings. That false trend is capable of distorting Dr. Bozzo's volume variability estimates.

When site-specific measurement error changes over time, fixed effects estimation cannot solve the errors-in-variables problem. In such cases, measurement error destroys the favorable statistical properties of all of the estimators considered by Dr. Bozzo. In particular, the fixed effects, the random effects, and the pooled estimators

28. USPS-T-15, p. 86.

will all be inconsistent. Moreover, the pattern of change in Manual Parcels and SPBS from Dr. Bradley's study in R97-1 to Dr. Bozzo's study as well as my own calculations suggest that the estimated variabilities are likely to be biased downward.

(3) Dr. Bozzo Erroneously Continues to Rely on Piece Handlings as a Proxy for True Volume.

Postal ratemaking procedures require estimates of the elasticities of various costs with respect to subclass-specific volumes of mail delivered. Because the number of subclasses is very large, direct estimation of these cost elasticities is often not feasible. As a result, most Postal Service costing studies rely on the cost driver/ distribution key approach in which the required elasticities are estimated in a two-step process. The first step in this process involves estimating the elasticity of the costs in question with respect to a "cost-driver." In the second step, the shares of the cost driver accounted for by each subclass are combined with the estimated elasticity to arrive at the required subclass-specific cost elasticity.

There are a number of assumptions implicit in the cost driver/distribution key approach. The first is that the cost driver captures the essential cost-causing characteristics of the various subclasses. For example, in the case of purchased highway transportation, the cost driver is the number of cubic foot miles of mail carried. The greater the number of cubic foot miles carried, the greater are purchased highway transportation costs. To measure the contribution of a particular subclass to purchased highway transportation costs, all one need know is the number of cubic foot miles associated with that subclass.

The second key assumption is that the cost driver changes in direct proportion to the volume of mail carried. This assumption is referred to by Dr. Bozzo as the "proportionality" assumption.[29] Pursuing further the example cited above, this assumption requires that if the volume of a particular subclass of mail were to double, the number of cubic foot miles associated with it must also double.

In R97-1, I criticized Dr. Bradley for his reliance on "piece-handlings" as a cost driver in his study of mail processing labor costs. At that time, I noted that what is required for ratemaking purposes is the elasticity of mail processing costs with respect to ***volume***, and that piece handlings is a measure that is conceptually distinct from volume. Volume is measured by the number of pieces of mail tendered for delivery, or, alternatively, by the number of pieces of mail delivered (these two should hopefully be equal). A piece handling, however, is generated each time a piece of mail at a specific site is processed in a particular sorting activity. Thus, in the vast majority of cases, a single piece of mail will generate many piece handlings as it makes its way from its origin to its destination. The proportionality assumption requires that, on average within a subclass, each additional piece of mail generates the same number of additional piece-handlings. In R97-1, I pointed out that Dr. Bradley had presented no empirical evidence regarding the validity of this crucial assumption.

Dr. Bozzo's study is equally silent on the subject. In his written testimony, Dr. Bozzo discusses and dismisses my R97-1 criticism on this point. In the course of this discussion he offers a number of arguments, none of which is fully convincing.

29. USPS-T-15, p. 53.

The first of these arguments is essentially a "it's not my problem" argument. He correctly notes that even if it were the case that piece handlings and volume were not proportional, this would not necessarily mean that the elasticity of labor hours with respect to piece handlings had been measured incorrectly.[30] Although true, this observation is disingenuous. What is required for ratemaking is an estimate not of a piece handling variability, but rather of a volume variability.

The second of these arguments is that the proportionality assumption simplifies the calculation of the required subclass-specific volume variabilities. This argument is equally true and equally disingenuous. It would be even simpler for the Postal Service to dispense with the whole cost driver/distribution key approach and retain the traditional finding that mail processing labor costs are 100 percent volume variable. The Postal Service, however, apparently believes this finding to be untrue, and has presented Dr. Bozzo's much more complicated study because it believes its results to be closer to the truth. This decision demonstrates an obvious principle: simplicity alone is not enough to justify a critical assumption; in addition, the assumption must be true.

The third argument offered in support of the proportionality assumption rests upon the multi-year nature of national deployments of new equipment and adoption of major operational changes.[31] It may be inaccurate to characterize Dr. Bozzo's statements in this context as an argument, since his reasoning is not fully set forth. He seems to suggest that because major deployments of new equipment take time, their effects on the relationship between volume and piece handlings should be disregarded.

30. USPS-T-15, p. 52.

31. USPS-T-15, p. 55.

If this is his argument, I find it unconvincing. I would expect the installation of major new pieces of equipment at a particular plant to have potentially substantial effects on mail processing operations at that site. Many of the deployments to which he refers involve dozens or hundreds of such sites.[32] Over the span of a few years such deployments could have drastic effects. Ultimately, the question of whether or not these effects should be disregarded is one that should be answered empirically.

I have conducted an empirical investigation of the relationship between the volume of mail processed at a plant and the number of piece handlings at that plant. My results show that an increase in volume causes a disproportionate increase in piece handlings. Those results validate the criticisms I made in R97-1. Thus, my criticisms in R97-1 apply equally to Dr. Bozzo's current study.

There are at least two obstacles to estimating the elasticity of cost with respect to volume at the facility level. The first is that true volume can only be measured at the system level, not at the facility level. There is, however, a volume-like measure available at the facility level: first handling pieces ("FHP"). First handling pieces counts the unique number of mail pieces entering the facility. Thus, FHP is a conceptually attractive measure of volume at the facility level. The second problem, however, is that FHP is known to be a very noisy measure of volume. FHP is not a physical count of the number of mail pieces entering a facility; rather, it is a weight-imputed count. Facilities use national weight conversion factors to convert weights to pieces, by shape. Because of the known pitfalls of using poor quality data as control variables, there is general agreement that FHP ought not be used as the measure of volume.

32. ANM/USPS-T10-34, Tr. 5/1584.

I investigated the relationship between FHP and piece handlings ("TPH/F") using the data provided by Dr. Bozzo in USPS-LR-I-186. These data, like the data on TPH/F, are presented by site and by quarter, for each of the MODS groups. I merge the FHP data with the original data provided by Dr. Bozzo in his workpapers and modify the sample selection criteria to include checks on FHP. In particular, I include an observation in the analysis sample if, along with Dr. Bozzo's other sample selection criteria, FHP is greater than zero and there are still a minimum of eight usable observations for the site to which the observation belongs.

To avoid the pitfalls of errors-in-variables bias, I estimate the elasticity of TPH/F with respect to FHP using the reverse regression of FHP on TPH/F and other variables, running separate regressions for each of eight MODS groups of interest and also for each of two shape categories. The reverse regression isolates the mismeasured variable FHP as the dependent variable. It is a well known result that measurement error in the dependent variable is absorbed in the error term and can be ignored.[33] The elasticity of interest, then, is computed as the reciprocal of the estimated marginal effect of ln(THP/F) on ln(FHP).

(a) MODS Pool-Level Analysis

In keeping with Dr. Bozzo's MODS-level analysis, I first estimate a MODS-level, log-log specification of the reverse regression, which includes as regressors the level and square of TPH/F, possible deliveries (DPT) as a measure of local network effects,

33. See William H. Greene, Econometric Analysis (2d ed. 1993), p. 281.

and a set of eighteen time dummies, one for each quarter excluding the second quarter of 1994. For each MODS group, the full estimating equation is:

$$\ln(FHP_{it}) = \alpha_i + \beta_1 \ln(THP / F_{it}) + \beta_2 \ln(TPH / F_{it})^2 + \beta_3 \ln(DPT_{it}) + \beta_4 TimeDummies_{it} + u_{it}$$

where the subscripts *i* and *t* index the site and time period, respectively. To investigate the importance of DPT and the time dummies, I also estimate a restricted model. The restricted estimating equation is:

$$\ln(FHP_{it}) = \alpha_i + \beta_1 \ln(THP / F_{it}) + \beta_2 \ln(TPH / F_{it})^2 + u_{it}.$$

Following Dr. Bozzo's approach, I estimate the parameters of both equations using panel fixed effects estimation with the modified Baltagi and Li's generalized least squares procedure, to allow the regression disturbances to exhibit first-order serial correlation.

Table 6 presents the estimated elasticities of TPH with respect to FHP, instead of the individual regression coefficients, for both specifications. The full set of regression coefficients is presented in Appendix D. Because of the problem of commingling of data between the manual parcels and SPBS pools, I combine them into a single composite parcels pool. F-tests uniformly find in favor of the full specification, indicating that local network characteristics and time specific effects are important determinants of the relationship between FHP and TPH. Moreover, the estimated marginal effects resoundingly reject the proportionality assumption. In every case, the estimated elasticity of TPH with respect to FHP is greater than one, and often by a very large margin.

Table 6

Estimates of the Elasticity of TPH with respect to FHP
Imputed from the Reverse Regression of FPH on TPH - MODS Level Analysis

MODS Group	Specification	AR1-Fixed Effects	Ho: Proportionality	F-Statistic	Pvalue
OCR	Full	1.597	reject	20.304	0.000
		(0.043)			
	Partial	1.386	reject		
		(0.030)			
LSM	Full	1.069	reject	6.446	0.000
		(0.030)			
	Partial	0.956	reject		
		(0.018)			
BCS	Full	2.091	reject	25.748	0.000
		(0.058)			
	Partial	1.560	reject		
		(0.027)			
Manual Letters	Full	1.229	reject	14.606	0.000
		(0.012)			
	Partial	1.174	reject		
		(0.010)			
FSM	Full	1.544	reject	56.969	0.000
		(0.027)			
	Partial	1.138	reject		
		(0.012)			
Manual Flats	Full	1.010	reject	9.000	0.000
		(0.008)			
	Partial	0.969	reject		
		(0.006)			
Parcels	Full	1.795	reject	7.692	0.000
		(0.099)			
	Partial	1.786	reject		
		(0.088)			
Priority	Full	1.013	reject	1.697	0.030
		(0.003)			
	Partial	1.010	reject		
		(0.002)			

Notes and Sources:

1. Data from fhp9398.xls and reg9398.xls, provided in USPS-LR-I-186 and USPS-LR-I-107, respectively.
2. Standard errors shown in parentheses.
3. Estimated effects are significantly different from zero and one at or below the 1% significance level.
4. Partial specification regresses ln(FHP) on ln(TPH) and the square of ln(TPH).
5. Full specification regresses ln(FHP) on ln(TPH), the square of ln(TPH), ln(DPT), and a set of 18 time dummies (one for each quarter, excluding the first one).
6. F-Tests (statistics and pvalues shown in table) uniformly favor the full specification.
7. Appendix C shows the full set of estimation results.

(b) Shapes-Level Analysis

Because FHP is calculated from mail weight using national weight conversion factors by shape, it may well be that the data are meaningful only at the shapes level, not at the MODS level. Thus, I estimate a shapes-level log-log specification of the reverse regression described above for letters and flats. The shapes-level analysis requires aggregation of the OCR, LSM, BCS, and Manual Letters MODS groups into Letters and the aggregation of FSM and Manual Flats into Flats.

Table 7 presents the estimated elasticities of TPH with respect to FHP, instead of the individual regression coefficients, for both specifications. The full set of regression coefficients are presented in Appendix D. As with the MODS-level analysis, F-tests uniformly find in favor of the full specification, indicating that local network characteristics and time-specific effects are important determinants of the relationship between FHP and TPH. Furthermore, the estimated marginal effects resoundingly reject the proportionality assumption. Aside from Priority, the point estimates indicate that total piece handlings increase considerably faster than first piece handlings. Elasticities of TPH with respect to FHP range from just over one for Priority to a high of 2.06 for letters.

Table 7

Estimates of the Elasticity of TPH with respect to FHP
Imputed from the Reverse Regression of FPH on TPH - Shapes Level Analysis

Shape	Specification	AR1-Fixed Effects	Ho: Proportionality	F-Statistic	Pvalue
Letters	**Full**	2.062	reject	14.148	0.000
		(0.061)			
	Partial	1.689	reject		
		(0.034)			
Flats	**Full**	1.318	reject	46.449	0.000
		(0.015)			
	Partial	1.078	reject		
		(0.009)			
Parcels	**Full**	1.795	reject	7.691	0.000
		(0.099)			
	Partial	1.786	reject		
		(0.088)			
Priority	**Full**	1.013	reject	1.697	0.030
		(0.003)			
	Partial	1.010	reject		
		(0.002)			

Notes and Sources:

1. Data from fhp9398.xls and reg9398.xls, provided in USPS-LR-I-186 and USPS-LR-I-107, respectively.
2. Standard error shown in parentheses.
3. Estimated effects are significantly different from zero and one at or below the 1% significance level.
4. Partial specification regresses ln(FHP) on ln(TPH) and the square of ln(TPH).
5. Full specification regresses ln(FHP) on ln(TPH), the square of ln(TPH), ln(DPT), and a set of 18 time dummies (one for each quarter, excluding the first one).
6. F-Tests (statistics and pvalues shown in table) uniformly favor the full specification.
7. Appendix D shows the full set of estimation results for Letters, Flats, and Parcels. Appendix C shows the full set of estimation results for Priority.

(4) Dr. Bozzo's Results Have Unreasonable Implications for the Efficiency of Manual Operations.

Dr. Bozzo's variabilities for manual operations are uniformly smaller than his variabilities for automated or mechanized operations, implying that manual operations exhibit economies of scale while mechanized or automated operations do not. This relationship implies that as volumes grow in both activities, costs grow less rapidly in manual activities, and thus that manual processing eventually becomes less expensive on a per piece basis than mechanized and automated activities. Such a result would be counter-intuitive. The Postal Service has pursued automation as a cost saving strategy. Since the move to mechanized or automated operations entails significant capital expenditures, it makes sense only if these capital costs are offset by lower per piece processing costs.

The anomaly caused by the presence of economies of scale in manual processing could be more apparent than real. It is possible that the per piece cost of processing a piece manually is substantially higher than the corresponding cost of mechanized processing, and that the per piece cost of manual processing declines slowly with growth in volume. One might, in such a case, never actually encounter a situation in which manual processing is actually the less costly option.

One can test the reasonableness of Dr. Bozzo's results by checking to determine whether manual processing ever actually is the lower cost option for any of the facilities in his sample. A result indicating that manual processing is less expensive on a marginal cost basis than mechanized or automated processing would raise serious questions about the validity of Dr. Bozzo's findings. I have conducted such a test, and

find that there are numerous instances in which manual processing is apparently the more economical option.

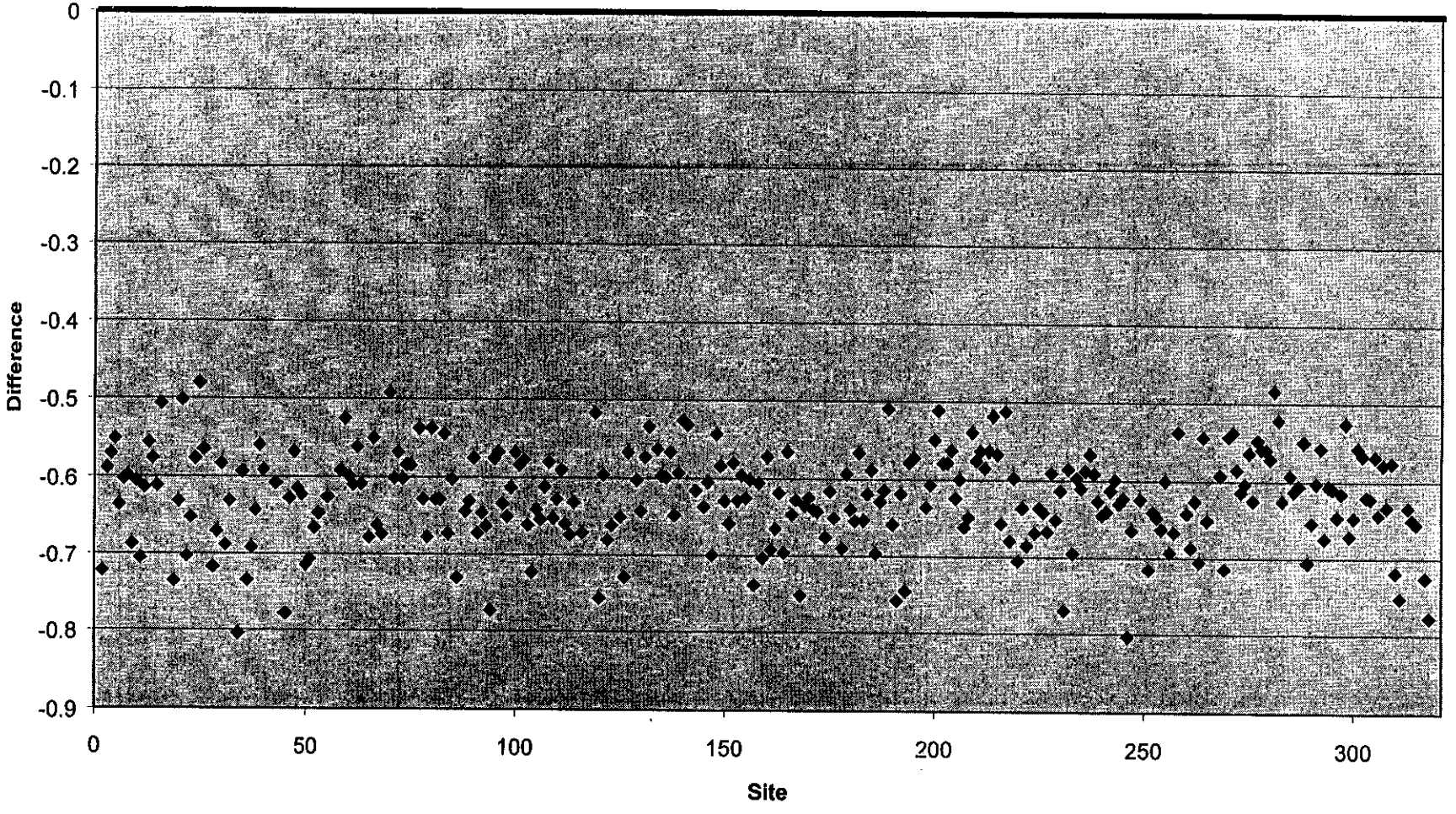
The necessary calculation of marginal cost is straightforward. The elasticity (ε) of labor costs (C) with respect to piece handlings (V) is equal to $\frac{dC}{dV}\frac{V}{C}$, where $\frac{dC}{dV}$ is the marginal cost (MC) of an increase in V. Marginal cost in a particular sorting operation *i* is given by $\hat{MC}_i = \hat{\varepsilon}_i \frac{\overline{C_i}}{\overline{V_i}}$, where *i* indexes the sorting operation, and $\overline{C_i}$ and $\overline{V}_i$ are average piece handlings and volume, respectively.

Using facility-specific 1998 piece handlings and volume data and Dr. Bozzo's estimated coefficients from his labor demand model, I calculate the marginal cost in 1998 for sorting operation *i* at facility *j* as: $\hat{MC}_{98,i,j} = \hat{\varepsilon}_{98,i,j} \frac{\overline{C_{98,i,j}}}{\overline{V_{98,i,j}}}$, where $\overline{C}_{98,i,j}$ and $\overline{V}_{98,i,j}$ are site-specific average piece handlings and volume, respectively.

To investigate the reasonableness of the pattern of implicit marginal costs across MODS groups, I compare the facility-level marginal cost of manual sorting relative to the marginal cost of automated/mechanized sorting by mail shape. In particular, I compare the marginal cost of BCS to Manual Letters, the marginal cost of OCR to Manual Letters, the marginal cost of SPBS to Manual Parcels, and the marginal cost of FSM to Manual Flats. These comparisons reveal the expected pattern for letters. In particular, I find that for each of the 282 facilities for which we have 1998 estimated elasticities, the marginal cost of processing a letter in BCS is well below the marginal cost of manual processing. Similarly, I find that for each of the 246 facilities in the comparison, the

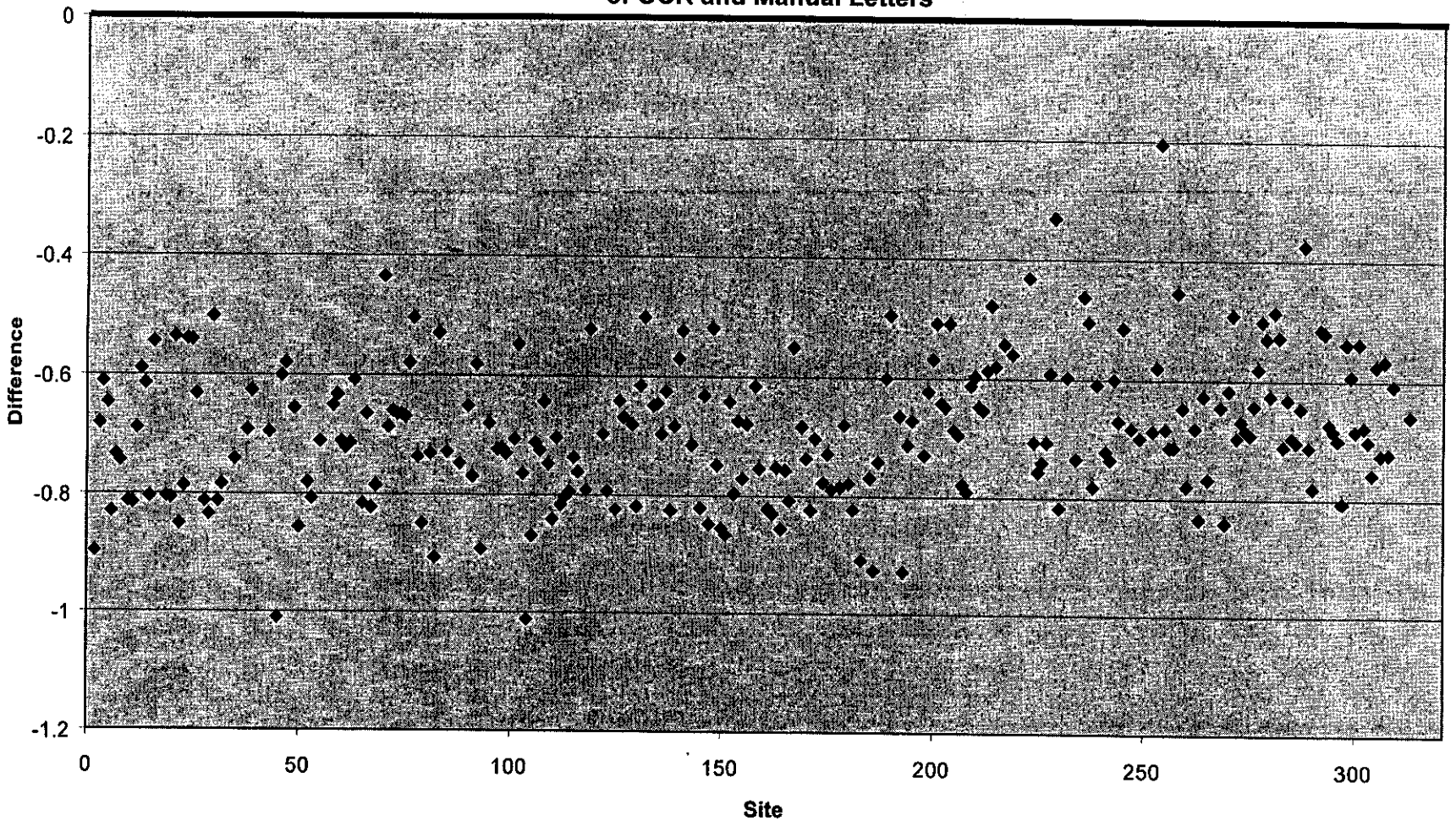
marginal cost of processing a letter in OCR is well below the marginal cost of manual processing. See Figures 3 and 4.

Figure 3
Comparison of the Implied Marginal Costs
of BCS and Manual Letters



Notes: The figure plots the difference between the ratio of manual to automated elasticities and the ratio of automated to manual average costs. For facilities below the zero line, the marginal cost of automated processing is lower than the marginal cost of manual processing. The figure contains data on 282 sites, none of which are above the zero line.

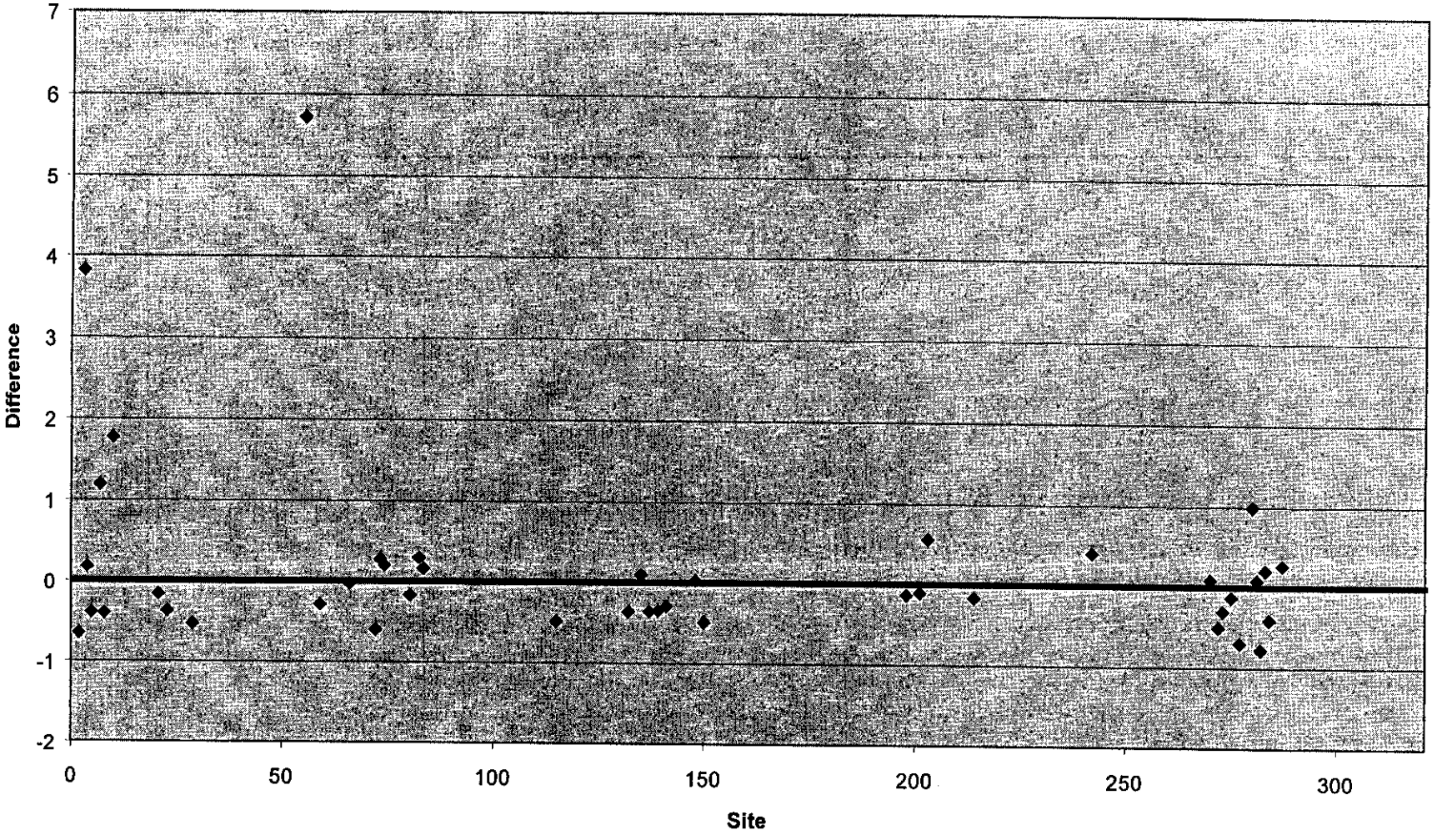
Figure 4
Comparison of the Implied Marginal Costs
of OCR and Manual Letters



Notes: The figure plots the difference between the ratio of manual to automated elasticities and the ratio of automated to manual average costs. For facilities below the zero line, the marginal cost of automated processing is lower than the marginal cost of manual processing. The figure contains data on 246 sites, none of which are above the zero line.

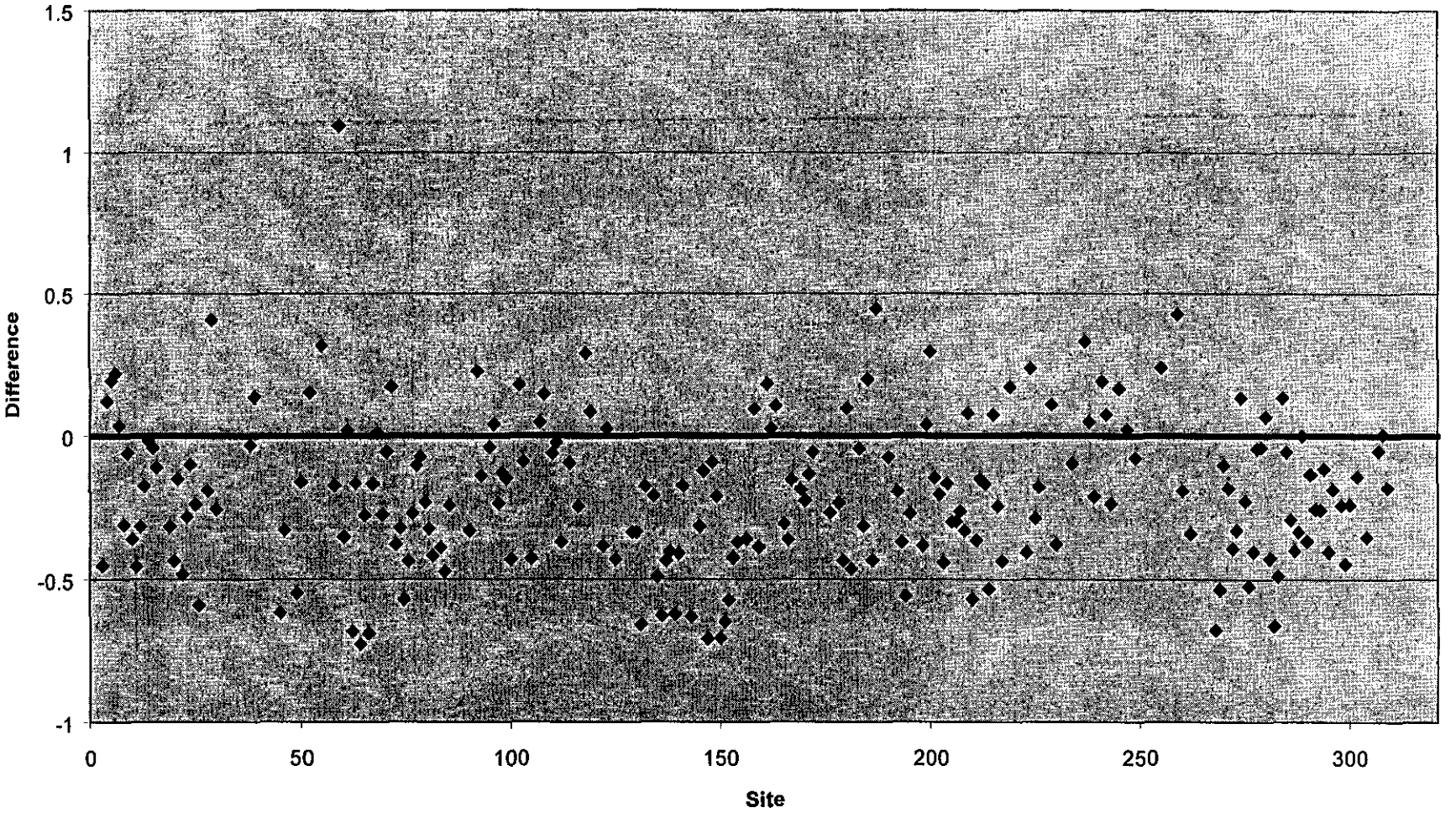
The comparisons for parcels and flats, however, reveal peculiar patterns. I find that for 42 percent of the facilities in the comparison, the marginal cost of manually processing a parcel is lower than the marginal cost of the mechanized SPBS technology. Consistent with previous conclusions, this investigation casts serious doubt on the reliability of the estimated elasticities for Manual Parcels and SPBS. I find that for 22 percent of the facilities in the comparison, the marginal cost of manually processing a flat is lower than the marginal cost of the mechanized FSM technology. This finding casts doubt on the reliability of the estimated elasticities of Manual Flats and FSM. Figures 5 and 6. I suspect that the large number of cases shown in these tables in which manual processing is apparently less expensive than mechanized or automated processing reflects downward bias in the estimated volume variabilities for manual operations.

Figure 5
Comparison of the Implied Marginal Costs
of SPBS and Manual Parcels



Notes: The figure plots the difference between the ratio of manual to automated elasticities and the ratio of automated to manual average costs. For facilities below the zero line, the marginal cost of automated processing is lower than the marginal cost of manual processing. The figure contains data on 43 sites, 42 percent of which are above the zero line.

Figure 6
Comparison of the Implied Marginal Costs
of FSM and Manual Flats



Notes: The figure plots the difference between the ratio of manual to automated elasticities and the ratio of automated to manual average costs. For facilities below the zero line, the marginal cost of automated processing is lower than the marginal cost of manual processing. The figure contains data on 213 sites, 22 percent of which are above the zero line.

MR. DEGEN'S CONCLUSIONS REGARDING VOLUME VARIABILITY OFTEN REST UPON FLAWED ARGUMENTS OR UNVERIFIED ASSUMPTIONS.

In this proceeding, Postal Service Witness Degen presents his "operational analysis" of mail processing on the basis of which he argues that volume variabilities "are generally less than 100 percent."[34] In this part of my testimony, I review his arguments and assess their validity. I consider carefully in the light of the available evidence the potential for volume specific diseconomies associated with the operation of a single mail sorting operation, for plant-specific diseconomies associated with the operation of an entire facility, and for system-wide diseconomies associated with the Postal Service's operation of multiple facilities.

Based on this analysis, I conclude that Mr. Degen's testimony should be approached with some caution and considerable skepticism. The operational arguments he offers for the presence of economies of scale are weaker than they first appear. In his effort to support Dr. Bozzo's study and argue for volume variabilities below 100 percent, Mr. Degen makes a number of important but implicit assumptions regarding the effects of increases in mail flow on mail processing operations. Often these assumptions are made without supporting evidence, and at times they are contradicted by available information. Frequently, the situation turns out to be considerably more complex than he makes it out to be. In this section, I explain in turn each of his principle arguments for the existence of economies of scale. I conclude that

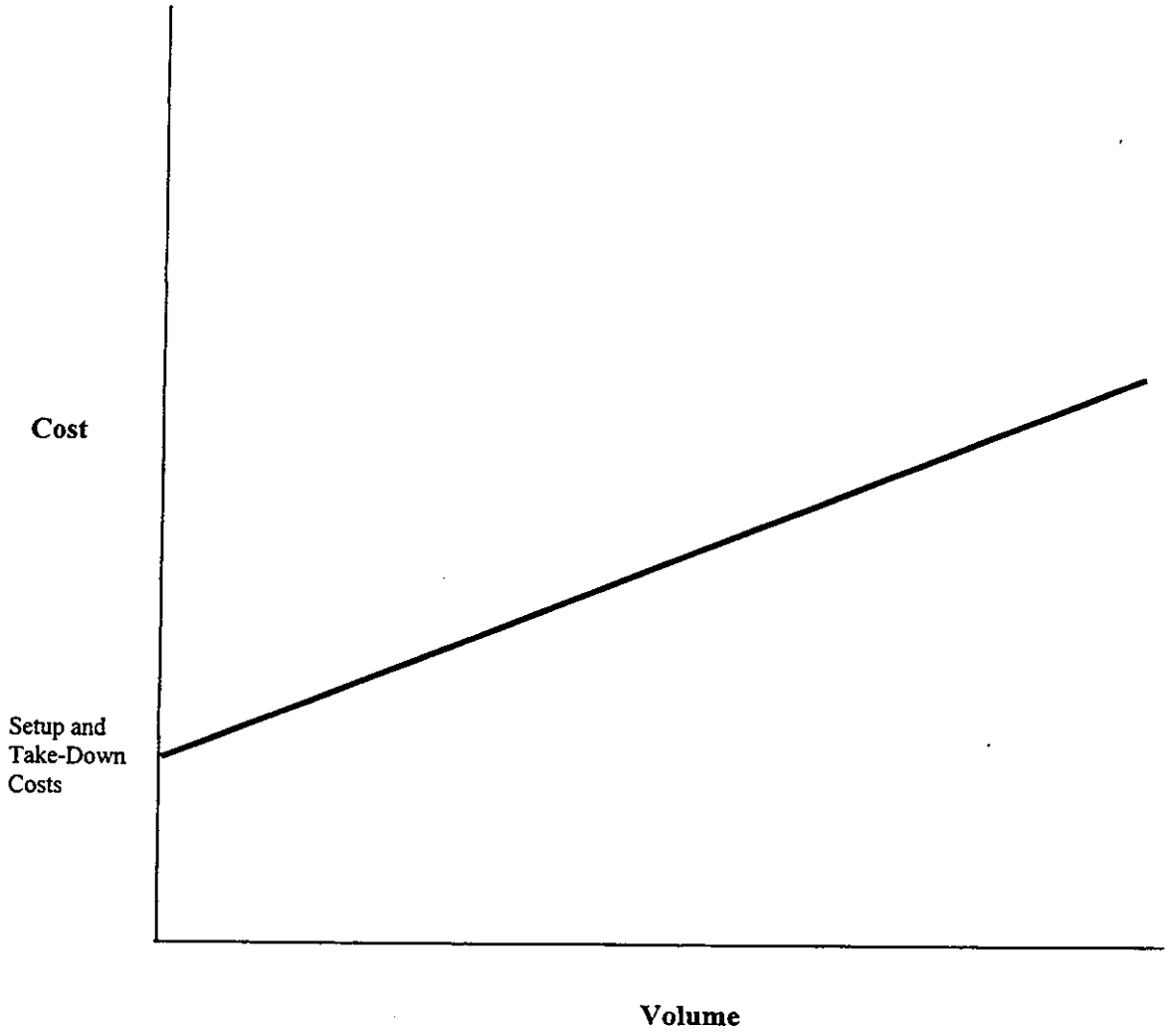
34. USPS-T-16, p. 51.

mail processing operations may very well experience *dis*economies of scale, manifested as volume variabilities in excess of 100 percent.

(1) Existence of Setup and Takedown Times

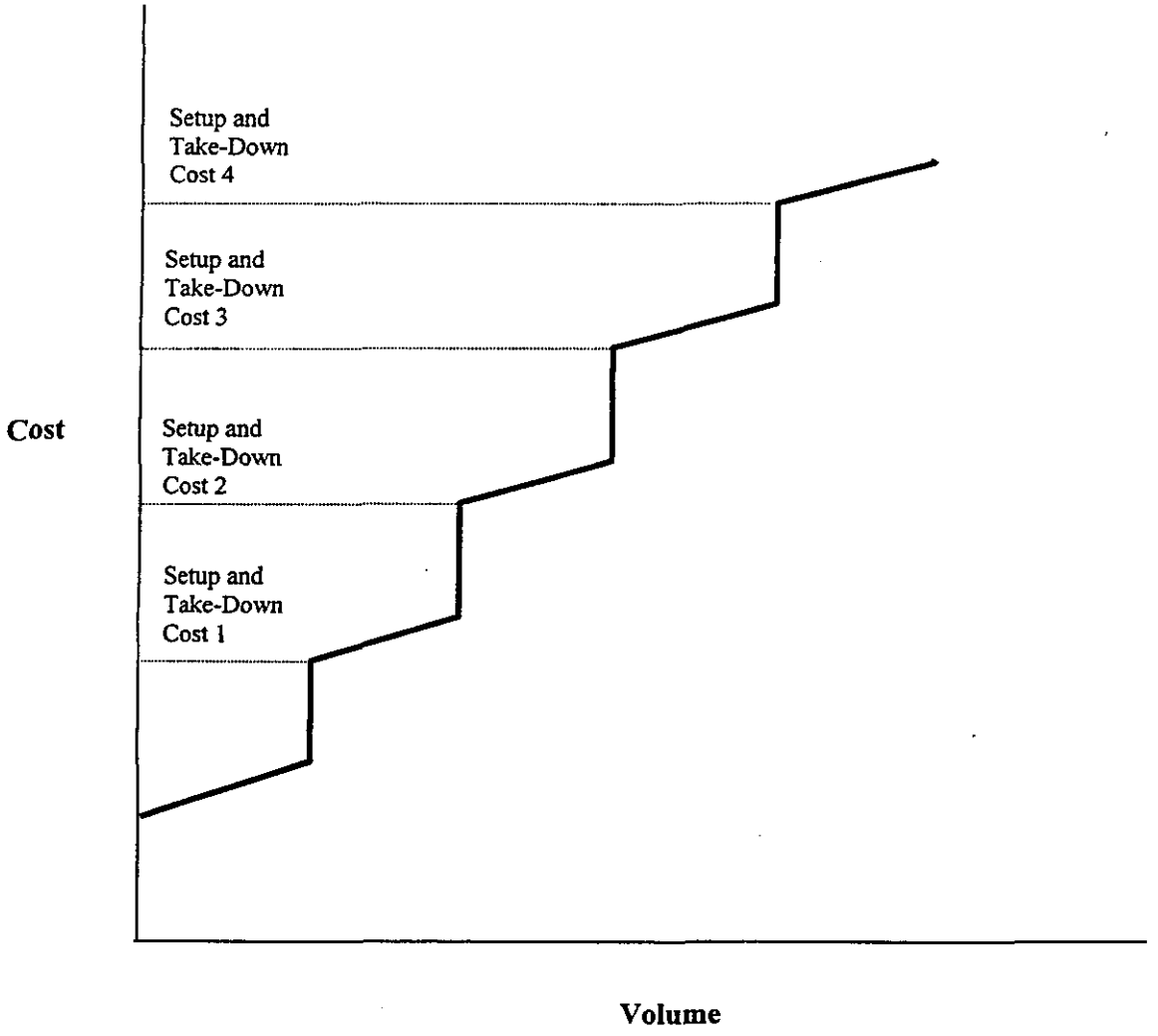
Mr. Degen argues that setup and takedown times for an operation represent a fixed cost that does not vary with the volume of mail processed. Over at least some range of volumes, Mr. Degen is almost certainly correct. For small increases in volume, these costs will remain fixed and with growth they will be amortized over ever larger volumes, giving the result that such operations will exhibit economies of scale. Figure 7 depicts the relationship between volume and cost in just such a situation.

Figure 7
Setup and Take-Down Times Over a Limited Range of Volumes



However, what Mr. Degen fails to recognize is that large enough increases in volume may require replication of a mail processing operation, with a corresponding replication of setup and takedown times. This point is illustrated most clearly when there are setup and takedown times associated with the operation of a piece of mail sorting equipment. At some point, growth in volume could necessitate the installation of a second machine, at which point the setup and takedown times could be expected to double. Replication of setup and takedown times in response to continuing growth in volume could create a situation in which costs increase in a stepwise fashion in direct proportion to volume. Such a situation is depicted in Figure 8.

Figure 8
Replication and Stepwise Increase of Setup and Take Down Times in Response to Volume Growth



In this situation, the economies of scale associated with the existence of setup and takedown times are limited to a narrow range of volume changes. At the end of this range, when it becomes necessary to step up to the next capacity level, the process encounters substantial *dis*economies of scale. For a large change in volume that spans a number of steps, costs should increase in direct proportion to the change in volume.

This point is by no means a theoretical one. One of the MODS pools which, according to Mr. Degen, had setup costs involved the operation of Flat Sorting Machines. Table 1 on page 9 above shows the average number of machines per site for the facilities in Dr. Bozzo's dataset. That table selects some of the more significant pieces of equipment from the much longer list shown in Appendix B. To pick one example, the average number of flat sorting machines per facility starts at 5.6 in 1993, and grows over the period covered by Dr. Bozzo's data to 11.3. In this case, therefore, we are much closer to the situation depicted in Figure 8 than that shown in Figure 7.

(2) Implicit Assumption that Incremental Volume Growth Occurs in the Shoulders of the Peak

Mr. Degen explains that gateway operations such as culling and canceling require peak-load staffing early in the day and late in the day to ensure that mail can flow quickly to the outgoing sorting operations; he also explains that at other times of the day, because of the uncertain arrival times of mail batches, these gateway operations can hold idle capacity to process mail.[35] He goes on to say, "Increases in

35. USPS-T-16, p. 37.

total collection volume . . . will not increase cancellation hours proportionately . . . -- some of the waiting time will simply be converted to processing."[36]

What Degen ignores is the possibility that growth in volume could occur during the peak periods that govern staffing levels in these operations, rather than in addition to the shoulders of the peak when extra capacity is available. There is no evidence to suggest that in fact, incremental volume growth would occur only in the shoulders of the peak. If all volumes grow proportionately -- including the peak period volume that sets staffing levels -- one would expect staffing levels to grow proportionately in response. Existence of these waiting times in gateway operations would give rise to economies of scale only in limited situations in which volume growth occurred in a very specific and highly favorable manner.

(3) The Need in Gateway Operations to "Get Mail Into Processing"

Mr. Degen describes a perceived urgency in upstream gateway operations to move mail quickly to downstream mail sortation operations.[37] This sense of urgency suggests that the combination of finite downstream throughput rates and finite processing windows necessitate early upstream staffing to guarantee that every possible minute of downstream processing time is fully utilized. Otherwise, there would be no reason for concern about the possible buildup of unprocessed mail in gateway operations. The need to make full use of downstream processing capacity implies that gateway staffing levels are in fact volume driven. In this case the volume in question, however, is the volume to be processed in downstream operations, and the issue is the

36. USPS-T-16, p. 37.
37. USPS-T-16, p. 37.

ability of those operations to handle that volume within the available processing window. This example illustrates not only the volume variability of gateway staffing levels, but also the interdependency of the different activities housed within a mail processing facility.

(4) Worker Pacing in Manual Operations

Mr. Degen claims that machine paced operations should exhibit higher variabilities than worker paced operations. He explains that in worker paced operations, "[i]ncreased mail volumes create pressure to sort faster in order to meet dispatch requirements."[38] While it is likely that workers under pressure will work harder, Mr. Degen oversimplifies the relationship between mail volume and the amount of pressure to which workers in manual operations are subject.

Both Mr. Degen and Ms. Kingsley identify a number of different situations in which the Postal Service resorts to manual processing. Manual processing may be the only type of sortation available at a facility for that mail stream. The Postal Service also resorts to manual sorting for pieces of mail with physical characteristics that do not lend themselves to mechanized processing.[39] In flats processing, some plants resort to manual processing when the available sorting equipment is being used to full capacity.[40] Particular batches of mail may also be sorted manually if they arrive too late in the

38. USPS-T-16, p. 41.
39. USPS-T-10, p. 13.
40. USPS-T-16, pp. 43-44.

processing window to accommodate the setup and takedown times associated with mechanized processing.[41]

The time pressure associated with these various situations are likely to vary dramatically. For example, late arriving mail could well put workers under enormous pressure, even if the volumes are relatively low. More generally, the amount of pressure workers operate under will reflect the relationship between the volume of mail to be processed, and the number of labor hours scheduled. This relationship is heavily influenced by supervisory personnel.

Mr. Degen's arguments regarding worker pacing suggest that he is taking an extremely short run view of volume variability. It is clearly the case, as many witnesses have testified, that mail volume varies randomly, and that supervisors set staffing levels to handle an expected workload. In such situations one can well imagine that there will be light days and heavy days, and that productivities in worker-paced operations might vary in response to these changes in workload. However, a sustained increase in workload is likely to lead to changes in staffing levels. It is up to supervisors to determine what those staffing levels will be, and I have seen no evidence to suggest that they would demand higher and higher productivities as mail volumes grow.

ALTERNATIVE CALCULATIONS OF VOLUME VARIABILITIES

(1) Overview

As I have explained, Dr. Bozzo's analysis is vulnerable to a number of potentially serious biases. Dr. Bozzo's analysis ignores serious issues of data quality for manual

41. USPS-T-16, p. 20.

operations. It also maintains the artificial assumption of proportionality of piece handlings with true volume. Perhaps most important, it ignores structural changes, at both the facility and the system levels, that undoubtedly alter the underlying efficiency of mail processing. Dr. Bozzo's failure to address these concerns renders his variability estimates unreliable.

In this section, I present alternative calculations that directly address each of the biases described. Concerns over data quality and over the proportionality assumption can be examined within Dr. Bozzo's MODS-level analysis. Indeed, my first two sets of calculations intentionally adopt and modify the MODS level setup in order to illustrate the effects of data errors and violations of the proportionality assumption, respectively, on Dr. Bozzo's estimated variabilities. Specifically, I explore the effects of aggregating up to the shapes level for letters, flats, and parcels, and adjust both MODS level and shapes level TPH variabilities for the elasticities of TPH with respect to volume. However, it is not possible using facility, MODS-level analysis to account for structural changes. Concerns about such structural changes in underlying technology and organizational design of the postal system can only be examined outside of Dr. Bozzo's setup – which by its very nature ignores facility-wide and system-wide changes. Consequently, my third set of calculations presents new elasticity estimates using aggregate system-level volume and mail processing cost segment data.

All three sets of analyses demonstrate the sensitivity of Dr. Bozzo's estimates to a more serious treatment of the concerns raised by the Commission in R97-1. Moreover, all three find volume variabilities that are much closer to one hundred percent, and often in excess of that level.

(2) Aggregation by Shape Produces Higher Volume Variabilities for Parcels and Flats

As noted above, a careful look at the TPH series for Manual Parcels and SPBS reveals that data for the two are sometimes commingled. Because a significant fraction of the gross errors in Manual Parcels may be explained by the commingling of SPBS and Manual Parcel reporting, I combine these two MODS groups into a single Parcels group. TPH for the combined group equals the sum of the TPH for Manual Parcels and SPBS. Combining the two MODS groups in this way eliminates reporting discrepancies between them.

There are arguments quite apart from the commingling of reporting for aggregating MODS pools up to the shapes level. As I have discussed, manual and automated processing activities represent parallel and interdependent methods for handling the same mail stream. For this reason, it may be appropriate to view the set of activities for a specific shape as an integrated whole and to measure the volume variability of that integrated process. Hence, I also estimate shape and volume variability for letters and flats.

Details of my procedures for aggregating to the shapes level are contained in my workpapers. In general, this involves simply summing the hours and piece handlings used in the individual MODS level regressions. It was necessary, however, to distinguish between true zeros and missing values. In general, I treated a string of consecutive zeros at either the start or the end of the series for a site as true zeros, and zeros embedded in the middle of the series as missing values. A missing value for a component MODS pool would result in deletion of the entire observation from the shape

level sample. In constructing the new shapes level wage variables, I noticed that an unusually large number of LDC 13 wages were missing from the data, resulting in a considerable reduction in sample size. To minimize the effect of wages on sample selection, I used predicted postal wages when actual postal wages were missing.[42]

The final analysis samples consists of 4,807 observations for letters, 4,774 observations for flats, and 3,651 observations for parcels.

I estimate Dr. Bozzo's labor demand model using panel fixed effects estimation with the modified Baltagi and Li's generalized least squares procedure, to allow the regression disturbances to exhibit first-order serial correlation. Following Dr. Bozzo, I then evaluate volume variability at the sample mean. As Table 8 shows, the estimate of Parcels variability produced in this way is 0.750, with a standard error of 0.034. By contrast, Dr. Bozzo estimates a SPBS variability of 0.641 and a Manual Parcels variability of 0.522. The estimated variability for Parcels is about 29% higher than the average of the SPBS and Manual Parcel individual variabilities. This pattern is likely explained by the elimination of gross errors in data reporting across the two parcel sorting operations.

Table 8 also shows comparable results for the other two principal shapes: flats and letters. In the case of flats, I find results like those described above for parcels. Dr. Bozzo's analysis produces volume variabilities of 0.817 and 0.772 for FSM and manual flat sorting, respectively. Combining these two into a single composite flats group yields

42. Predicted wages are constructed from a set of ancillary regressions of actual wages on a complete set of facility and time dummies. The full regression outputs are included in Appendix E.

an estimate of volume variability of 0.857 -- higher than either of Dr. Bozzo's MODS pool estimates.

The picture with letters is somewhat different. Aggregation by shape produces a composite volume variability of 0.663, lower than any of the estimates for Dr. Bozzo's letter-based activities. As I have shown, however, in the case of letters there is an exceptionally high elasticity of piece handlings with respect to volume. Below I show that this high elasticity offsets the low elasticity of labor hours with respect to letter piece handlings, and produces a final estimate of volume variability for letters that is in excess of 100 percent.

Table 8

Estimated Volume Variabilities - Shapes Level

Shape	Variability	Std. Error	Sample Size	Adj R2	Rho
Letters	0.663	0.023	4807	0.997	0.650
Flats	0.857	0.022	4774	0.996	0.615
Parcels	0.750	0.034	3651	0.959	0.589

Notes and Sources:

1. Data from reg9398.xls, provided in USPS-LR-I-107.
2. The Letters shape includes OCR, LSM, BCS, and Manual letter sorting. Bozzo's variabilities for these MODS groups are 0.751, 0.955, 0.895, and 0.735, respectively.
3. The Flats shape includes FSM and Manual flats sorting. Bozzo's variabilities for these MODS groups are 0.817 and 0.772, respectively.
4. The Parcels shape includes SPBS and Manual parcels sorting. Bozzo's variabilities for these MODS groups are 0.641 and 0.522, respectively.
5. Appendix F presents the full set of labor demand estimates for the shapes-level regressions.

(3) Correcting Dr. Bozzo's Variabilities for TPH/FHP Elasticities

Both the MODS-level and the shapes-level analyses presented above show that THP/F grows disproportionately faster than FHP. These results imply that the elasticities of labor costs with respect to TPH/F systematically underestimate the true volume variability. In particular, when TPH/F grows 50 percent faster than FHP, a 10 percent increase in FHP results in a 15 percent increase in TPH. Consequently, to know how a one percent increase in FHP affects costs, it becomes necessary to adjust the THP elasticity by a factor of 1.50.

Formally, the Postal Service's distribution key method requires an estimate of the elasticity of labor costs with respect to volume. This elasticity can be decomposed as:

$$\frac{d\ln C}{d\ln FHP} = \frac{d\ln C}{d\ln TPH} x \frac{d\ln TPH}{d\ln FHP}$$

Dr. Bozzo's analysis provides an estimate of the first component. Under the proportionality assumption, which requires that the second component exactly equal

one, Dr. Bozzo's elasticity is equal to the true volume variability. However, my estimates demonstrate that the second component is in fact significantly greater than one, indicating a need to adjust Dr. Bozzo's variabilities.

Tables 9 and 10 present adjusted volume variabilities using both the MODS-level and the shapes level estimates of the elasticity of TPH with respect to FHP, respectively. Most of these corrected volume variabilities are well in excess of one, indicating the presence of diseconomies of scale. The sole exception is the Priority MODS pools, which, as I note above, is subject to an exceptional degree of reporting error.

Table 9

MODS-Level Estimates of the Elasticity of Labor Costs with Respect to First Handled Pieces

MODS Group	Bozzo's Variability of Costs w.r.t. TPH	MODS Level Variability of TPH w.r.t. FHP	Shapes Level Variability of TPH w.r.t. FHP	Volume Variability With MODS Level Correction	Volume Variability With Shapes Level Correction
OCR	0.751	1.597	2.062	1.199	1.549
LSM	0.954	1.069	2.062	1.020	1.967
BCS	0.895	2.091	2.062	1.871	1.845
Manual Letters	0.735	1.229	2.062	0.903	1.516
FSM	0.817	1.544	1.318	1.261	1.077
Manual Flats	0.772	1.010	1.318	0.780	1.017
Parcels[3]	0.750	1.795	1.795	1.346	1.346
Priority	0.522	1.010	1.013	0.527	0.529

Notes and Sources:

1. Volume variability is defined as :

$$\frac{\partial \ln C}{\partial \ln FHP} = \frac{\partial \ln C}{\partial \ln TPH} x \frac{\partial \ln TPH}{\partial \ln FHP}$$

2. Bozzo's variabilities taken from USPS-T-15, pp. 119-120.
3. For Parcels, the elasticity of costs with respect to (w.r.t.) TPH was estimated by combining the SPBS and Manual Parcels MODS groups, as described in the text of my report and presented in Table 8. The full set of coefficients used to construct this variability is presented in Appendices E and F.
4. The MODS-level variability of TPH w.r.t. FHP is taken from Table 6.
5. The Shapes-level variability of TPH w.r.t. FHP is taken from Table 7. Letter variability of TPH w.r.t. FHP applied to MODS groups OCR, LSM, BCS, and Manual Letters. Similarly, Flats variabilities applied to Manual Flats and FSM.

Table 10

Shapes - Level Estimates of the Elasticity of Labor Costs With Respect to First Handled Pieces

Shape	Variability of Costs w.r.t. TPH	Variability of TPH w.r.t. FHP	Volume Variability
Letters	0.663	2.062	1.367
Flats	0.857	1.318	1.130
Parcels	0.750	1.795	1.346
Priority	0.522	1.013	0.529

Notes and Sources:

1. Volume variability is defined as :

$$\frac{\partial \ln C}{\partial \ln FHP} = \frac{\partial \ln C}{\partial \ln TPH} x \frac{\partial \ln TPH}{\partial \ln FHP}$$

2. Shapes-level variabilities of costs w.r.t. TPH taken from Exhibit 9.
3. Shapes-level variabilities of TPH w.r.t. FHP is taken from Exhibit 11.

(4) Time Series Analysis of System-wide Mail Processing Costs

None of the alternative estimates of volume variability presented above reflects the full response of the Postal Service to changes in mail volume. Indeed, analyses based upon Dr. Bozzo's analytical framework cannot do so. To overcome this limitation and capture the effects of structural changes in the underlying technology and organizational design of the postal system, I analyze the effects of mail volume on work hours using aggregate, system-level time series data on volumes and mail processing costs. These aggregate data, by their very nature, automatically reflect net changes in productivity and efficiency from system-wide structural changes. They also circumvent concerns over both measurement error with piece handlings data at the facility level and the use of piece handlings as a proxy for true volume. Thus, the aggregate analysis is a conceptually superior alternative to the MODS-level analysis presented by Dr. Bozzo.

The analysis uses annual mail volume by class from 1981 to 1998. The classes include First Class Mail, Priority Mail, Express Mail, Periodicals, Standard (A), and Standard (B). The analysis also incorporates annual data on work sharing by class and on mail processing costs. I adjust for the effects of inflation using the GDP deflator. The volume and work sharing data are taken from LR-I-117. The mail processing costs data for cost segments 3.1 (Mail Processing Clerks and Handlers), 2.1 (Mail Processing Supervisors), and 11.2 (Mail Processing Operating Equipment Maintenance) are taken from the Postal Service's response to Interrogatory UPS/USPS-T11-7-17, Tr. 21/9351-52. My selection of an inflation index is guided by analysis of data on postal wages obtained from the U.S. Office of Personnel and Management's 1984-1994 Postal Service Employees and Payroll Report. The GDP deflator is from the Bureau of Commerce, and data on four other wage series I considered are taken from the Bureau of Labor Statistics. Finally, the analysis uses base year data from the In-Office Cost System ("IOCS") and work hours data from Dr. Bozzo's MODS data.

Due to sample size limitations, estimating effects of changes in volume on aggregate mail processing work hours requires consideration of three important data issues. The first issue arises in the adjustment of mail processing costs for the effects of inflation. In principle, this adjustment could be carried out using data on average postal wages. However, direct information on postal wages is available only for the years 1986-1995 and 1997. In the interest of preserving sample size, I investigated the relationship, during the more limited period for which postal wage data are available, between postal wages and more readily available inflation indices, including other wages series, the Consumer Price Index, and the GDP deflator. I find that the GDP

deflator tracks postal wages most closely.[43] Inflation adjusted costs, then, are computed as $\frac{Cost_t}{GDPDeflator_t}$.

The second issue arises from the fact that different classes of mail place different burdens on the mail processing system, and hence have different per piece costs. If sample size were not an issue, one could simply estimate separate coefficients for the individual effects on mail processing costs of volumes by class. However, this would require a six-fold increase in the number of parameters to be estimated -- too heavy a burden for the relatively small sample to bear. Consequently, it becomes necessary to find a way to weight the classes in a single composite measure of volume.

I aggregate volumes based upon the labor intensity of the different classes. The weighting scheme is derived from a combination of base year IOCS data and 1998 MODS data on labor hours. The IOCS data provide a breakdown of base year labor hours at the MODS pool level by class. This distribution, referred to as the transition matrix from MODS groups to subclasses, is shown in Appendix G. From Dr. Bozzo's dataset I obtain quarterly 1998 data on labor hours by MODS pool. Using the transition matrix, I first disaggregate base year MODS pool labor hours into classes, and then sum across MODS pools to derive overall labor hours by class. These figures are shown in Appendix H. Using these base year labor hours and base year volumes, I

43. The GDP deflator was chosen by comparing R2 across six different regression models which relate the log of postal wages to a constant and the log of one of the other wage or price series. The R2 from the regression with GDP deflator is 0.871. The other R2 are 0.418, 0.819, 0.792, 0.857, and 0.884 for each of the four wage series and the CPI, respectively. In addition, of all of these regressions, the GDP deflator regression had the coefficient estimate closest to one.

then construct my composite volume measure as follows: $V_t = \sum_j w_j V_{jt}$, where *j* indexes subclass and $w_j = \frac{HRS_{j,98}}{V_{j,98}}$. This weighting scheme implicitly gives relatively more weight to the more labor-intensive classes.

The aggregate mail processing cost equation, then, is given by:

$$\ln(\frac{Cost_t}{GDPDeflator_t}) = \alpha_0 + \alpha_1 \sum_j w_j V_{jt} + e_t$$

where *t* indexes time, *j* indexes the class, and e_t is the stochastic error term.

The final issue to be accounted for involves the work sharing in certain classes that reduces the effective volume of mail requiring processing. The volume data contain information on work sharing volumes. Again, if sample size were no issue, we would simply allow work share volumes to separately enter the cost equations. I incorporate the work share information into the mail processing cost equation as follows:

$$\ln(\frac{Cost_t}{GDPDeflator_t}) = \alpha + \alpha_1 \ln(\sum_j w_j (V_{jt} - \lambda V_{jt}^*) + e_t$$

where *t* indexes time, *j* indexes class, V_{jt} is the work share volume for class *j* in period *t*, and $w_j = \frac{L_{j,98}}{V_{j,98} - \lambda V_{j,98}^*}$. The parameter λ is the degree to which work sharing effectively reduces volume.

The parameter α_1 is the volume variability parameter. Estimation methodology depends upon the treatment of the work share parameter. To illustrate the role of this parameter, consider setting $\lambda = 0.80$. This would mean that work shared volume requires only a fifth of the mail processing effort that is required by non-work shared

volume. If λ is treated as a fixed parameter, the model can be estimated using ordinary least squares. Otherwise, all these parameters can be estimated using nonlinear least squares.

Table 11 presents the ordinary least squares estimates for three values of λ, 0.60, 0.70, and 0.80, and for three different definitions of mail processing labor costs. The leftmost column in the table focuses on mail processing clerk and mailhandler costs (cost segment 3.1), and adopts the narrowest definition of costs. The middle column adds labor costs associated with mail processing equipment maintenance (cost segment 11.2). The rightmost column broadens the cost definition further by adding the labor costs associated with supervision of mail processing (cost segment 2.1). The results strongly indicate that volume variabilities are greater than or equal to one. Estimates of volume variability range from a low of 98 percent to a high of 123 percent, indicating the presence of substantial *dis*economies of scale. In a number of instances, the difference from 100 percent is statistically significant.

Table 11

Aggregate Time Series Analysis, 1981-1998
Dependent Variable: ln(Costs/GDP Deflator)

Parameter	Work Share Parameter = 0.8		
	MP Clerks and Handlers	**MP Clerks, Handlers, and Operating Equipment Maintenance**	**MP Clerks, Handlers, Supervisors, and Operating Equipment Maintenance**
Constant	-9.796	-11.412	-11.461
	(1.468)	(1.424)	(1.305)
Volume Variability	1.135	1.224	1.230
	(0.078)	(0.076)	(0.070)
Adj R2	0.925	0.939	0.949
Parameter	**Work Share Parameter = 0.7**		
	MP Clerks and Handlers	**MP Clerks, Handlers, and Operating Equipment Maintenance**	**MP Clerks, Handlers, Supervisors, and Operating Equipment Maintenance**
Constant	-8.147	-9.650	-9.696
	(1.365)	(1.310)	(1.192)
Volume Variability	1.048	1.131	1.137
	(0.073)	(0.070)	(0.064)
Adj R2	0.924	0.939	0.950
Parameter	**Work Share Parameter = 0.6**		
	MP Clerks and Handlers	**MP Clerks, Handlers, and Operating Equipment Maintenance**	**MP Clerks, Handlers, Supervisors, and Operating Equipment Maintenance**
Constant	-6.836	-8.247	-8.290
	(1.288)	(1.227)	(1.112)
Volume Variability	0.979	1.057	1.063
	(0.069)	(0.065)	(0.059)
Adj R2	0.923	0.939	0.950

Notes and Sources:

1. Volume data from USPS-LR-I-117; accrued cost data from Postal Service response to UPS/USPS-T11-7-17, Tr. 21/9351-52; weights used to aggregate volumes constructed from the 1998 IOCS data provided in UPS-Sellick-W2, and reg9398.xls provided in USPS-LR-I-107; other data from 2000 U.S. *Statistical Abstract* and the Bureau of Labor Statistics.
2. Parameters and standard errors estimated using Ordinary Least Squares.

One pattern shown in Table 11 that is worth noting is the effect of the estimated volume variability of adding to the dependent variable the labor costs associated with the maintenance of mail processing equipment. In all cases, variability increases when these costs are added, implying that they have a higher volume variability than mail processing clerk and mailhandler costs. These results reemphasize the importance of considering capital costs in evaluating the response of mail processing costs to increases in volume. They also call into question Dr. Bozzo's argument that the capital intensity of mail processing is unaffected by growth in mail volume.

Clearly, the estimate of volume variability generated by this aggregate analysis depends upon what one uses for the workshared cost saving percentage. To provide a factual basis for this measure, I reestimated the model presented above, using nonlinear least squares and specifying the workshared cost saving percentage as a parameter. Table 12 presents results based upon the same definitions of cost depicted in Table 11. Estimated values for the workshared savings percentage range from .63 to .86, depending upon the cost definition used.

One point worth mentioning in connection with the results shown in Table 12 is that the estimated work share discount is higher for the narrower definition of costs -- based just on mailhandlers and clerks -- that for the broader definitions that include supervisory and equipment maintenance personnel. The result makes sense, since it is the handler's work that is being shared. Point estimates for volume variability are in all cases in excess of 100 percent, although in this more general model they are not statistically distinguishable from 100 percent.

Table 12

Nonlinear Aggregate Time Series Analysis, 1981-1998
Dependent Variable: ln(Costs/GDP Deflator)

Parameter	MP Clerks and Handlers	MP Clerks, Handlers, and Operating Equipment Maintenance	MP Clerks, Handlers, Supervisors, and Operating Equipment Maintenance
Constant	-10.892	-9.782	-8.711
	(5.736)	(5.733)	(5.293)
Volume Variability	1.193	1.138	1.085
	(0.303)	(0.303)	(0.279)
Work Share	0.855	0.708	0.632
	(0.256)	(0.350)	(0.383)
Adj R2	0.920	0.935	0.946

Notes and Sources:

1. Volume data from USPS-LR-I-117; accrued cost data from Postal Service Institutional response to UPS/USPS-T11-7-17, Tr. 21/9351-52; weights used to aggregate volumes constructed from the 1998 IOCS data provided in UPS-Sellick-WP2, and reg9398.xls provided in USPS-LR-I-107; other data from 2000 U.S. *Statistical Abstract* and the Bureau of Labor Statistics.
2. Parameters and standard errors estimated using Nonlinear Least Squares.

These results are derived from a model which, although highly simplified, responds fully to the concerns I have raised regarding both Dr. Bradley's R97-1 analysis and Dr. Bozzo's current analysis. This aggregate model is based upon an appropriate measure of mail volume. It encompasses the full range of actions taken by the Postal Service in response to changes in volume, and allows for the presence either of economies of scare or of diseconomies of scale at the activity, plant, and system levels. It presents results sharply at variance with those of Dr. Bozzo, and supports the Commission's historically-held view that mail processing labor costs are 100 percent volume variable. It suggests that at the system level there are, if anything, diseconomies of scale.

WHAT SHOULD A STUDY OF MAIL PROCESSING COST VARIABILITY LOOK LIKE?

On two occasions now I have been highly critical of the studies of mail processing cost variability introduced by witnesses testifying on behalf of the Postal Service. Although I believe firmly that these criticisms are warranted, I recognize the Commission's need for reliable information on this important subject. Accordingly, I end my testimony with some comments about how an appropriately designed study of mail processing cost variability should be structured.

(1) Only Plant or System Level Analysis Can Fully Capture the Interactions Between Activities.

As I have argued throughout my testimony and demonstrated through both empirical analyses and citations to the testimony of Postal Service operational witnesses, there are important interactions between the activities present in a mail processing plant. In most cases, for a given mail stream manual and automated

processing activities operate in parallel and interact in complex ways. In many instances, the same mail passes sequentially through multiple MODS activities. This is especially true if one considers not just the direct activities that are the subjects of Dr. Bozzo's analysis, but also the allied activities. Staff can be reassigned from one activity to another. Congestion at a facility can influence the processing of all of the different mail streams.

For all of these reasons, I believe that it is inappropriate to attempt to estimate mail processing cost variabilities through analyses conducted at the MODS pool level. In principle, given detailed enough models, one ought to be able to arrive at the correct result. As a practical matter, however, I doubt that such richly specified models will be achievable in the foreseeable future. It is clear from Dr. Bozzo's testimony that he conducted an extensive review of Postal Service databases in an effort to locate information suitable for use in his analysis. This huge effort resulted in the inclusion of a few additional variables in his analysis, but did not fundamentally alter his analysis or conclusions. I do not believe that, with the information that is realistically available, it is or will be possible to capture in a MODS pool analysis the effects of the rich set of interactions that occur within a mail processing plant.

An appropriate study of mail processing cost variability should focus on system-level analyses, or at minimum on plant-level analyses. If analysis is conducted at the plant level, it should account explicitly for the effects of changes in the network that alter the number, configuration or operating characteristics of plants.

(2) Capital Costs Play an Integral Role in the Postal Service's Response to Volume Growth.

It is absolutely clear that mechanization and automation are integral elements of the response of the Postal Service to growth in mail volume. As automation programs progress, the focus of these programs necessarily must switch from the substitution of capital for labor to providing enough capital and enough processing capacity to accommodate growth in volume. These fundamental facts imply that no analysis of mail processing cost variability can be complete without a full and adequate treatment of capital costs.

A full treatment of capital costs in this context would have to account for all aspects of the Postal Service's automation programs. These include the capital expenditures associated with the expansion of automated processing, changes in the mix of activities that result from the installation and upgrading of mail processing equipment, and the ongoing costs associated with the upkeep of that equipment.

(3) Growth in Delivery Points Must Be Considered a Part of the Growth In Volume.

A number of Postal Service witnesses have drawn distinctions between growth in volume and growth in "delivery points," or addresses to which mail might be delivered. The former, they argue, represents a "true" increase in volume whose effects should be reflected in rates. The latter, they assert, merely represents a change in network structure, and has no implications for ratemaking. This argument reappears in various forms in the testimony of a number of different witnesses.

Ms. Kingsley, for example, draws this distinction in her discussion of changes in staffing levels: "Delivery volume growth can be due to more pieces per delivery, or

more delivery points. If it is a pure volume increase without any changes in mail composition or delivery area it is relatively easy to handle."[44]

In Dr. Bozzo's testimony, the distinction is drawn once again. His econometric models include as explanatory variables both the number of piece handlings and the number of delivery points within each plant's service territory. He strongly rejects the idea that volume and delivery points have anything to do with one another: "Volume and network characteristics interact in complicated ways, but volume does not cause network characteristics. Recipients (addresses) must exist before there is any need to generate a mail piece."[45]

There is ample evidence in the record both in the testimony of operational witnesses and in the results of econometric analyses to suggest that volume growth resulting from an increase in mail volume per delivery point will have an effect on processing costs that is different from that of volume growth arising from an increase in the number of delivery points. That such differences should exist is not surprising. Similar cost structures can be found in other industries. They indicate that there are costs associated with connecting a new point to the network that do not vary directly with the volume generated by that point. A situation in which it costs less to expand volume within a fixed network than to expand the size of the network has been described as one characterized by "economies of density."

Postal Service witnesses have argued that increases in cost associated with growth in the number of addresses have no relevance to ratemaking. They argue, in

44. USPS-T-10, p. 30.

45. USPS-T-15, pp. 47-48.

effect, that the only costs that need to be considered are the costs associated with increases in pieces per delivery point. This argument might have merit in a situation in which mailers paid a two-part tariff consisting of a fixed charge for connecting to the network, and a variable charge associated with the number and mix of pieces mailed. But postal rates do not work that way, and that fact raises questions about how the costs associated with growth in the number of delivery points should be recovered.

Conceptually, one can divide growth in the volume of mail handled by the Postal Service into two components, one having to do with growth in the number of delivery points and the other having to do with increases in the number of mail pieces per delivery point. The former component may represent a significant fraction of the volume growth experienced by the Postal Service. Population is growing, new businesses are being formed, the economy is expanding, and the number of addresses is increasing. As Ms. Kingsley, Mr. Degen, and Dr. Bozzo have testified, this component of volume growth affects the organization and the costs of mail processing operations.[46] It is costly to accommodate.

Increases in the *density* of deliveries, in contrast, will be much easier and less costly to accommodate. The volume growth experienced by the Postal Service will consist of a mixture of this high cost and low cost growth in volume. For this reason, Mr. Degen's marginal mail piece will be associated with changes both in network size and in network density.[47] To ignore the clear association between the size of the

46. USPS-T-10, pp. 30-35.

47. USPS-T-16, pp. 15-17.

network and the volume of mail delivered, as Postal Service witnesses have urged, would be to ignore significant elements of cost associated with volume growth.

(4) Analyses of Mail Processing Costs Require an Appropriate Cost Driver.

We have yet to identify an appropriate driver for an empirical analyses of mail processing costs. Piece handlings, the measure that has featured prominently in Postal Service testimony in two rate cases now, has a questionable and variable relationship to the true volume of mail being processed at a plant. First handling pieces, although appropriate from a conceptual standpoint, is subject to serious measurement problems. No other attractive candidates have surfaced.

I do not believe that progress will be made in this area until an appropriate cost driver can be identified. Although I do not yet know what that cost driver might be, I do know some of the properties it must have. First, it must be something that can be measured with some precision and reliability. Second, if it is to be able to support plant-level analyses, it should measure in some meaningful way the volume of mail coming into the plant. These two requirements to some extent conflict with one another. Piece handlings can be measured with precision, at least for mechanized operations. However, they are internal process measures, and not measures of the amount of mail flowing in from the outside world. Third and most obviously, the cost driver has to relate in a meaningful way to the ability of the mail stream to generate cost. The weight of the incoming mail stream, which apparently meets the first and second criteria, fails on this third.

I do not know yet what the right answer is in this context, but I am confident that little progress will be made until a good answer is found.

Appendix A

Kevin Neels — Vice President

Ph.D.	Cornell University
A.B.	Cornell University

Kevin Neels has over twenty years of economic research and consulting experience. He has worked on behalf of numerous public and private sector clients in a wide range of industries. A skilled econometrician, he specializes in the use of quantitative techniques to resolve practical business, legal and regulatory problems. His extensive practical experience in the use of economic analysis to inform business decision making and win the support of legislative, legal and regulatory authorities has taught him how to effectively communicate analytical results in laymen's terms.

Dr. Neels has offered expert testimony on a number of occasions, either in the form of an expert report, in deposition or orally. He has also supported leading academic expert witnesses. Dr. Neels has played a key role in legal and regulatory proceedings for which the financial stakes have often run into tens or hundreds of millions of dollars. His work in support of counsel has touched all phases of the legal process, including discovery, development of theory, preparation of expert testimony, examination of opposing witnesses, preparation of trial exhibits and development of cross-examination strategy.

A frequent focus of Dr. Neels' work has been estimation of economic damages. He directed the team of economists working for the Plaintiff in the trial that resulted in the largest damage judgment ever awarded in a patent infringement lawsuit. On many occasions he has developed econometric models to support economic damage claims and testimony in antitrust litigation. He has also frequently been responsible for review and analysis of damage estimates put into evidence by opposing experts and for development of strategies for refuting these claims.

Dr. Neels has extensive experience in the areas of antitrust economics and damage estimation. He has been designated as an expert witness and has offered deposition testimony in a number of antitrust disputes. His work has addressed issues of both geographic and product market definition, as well measurement of antitrust damages. His work in support of clients involved in antitrust litigation has touched all phases of the process, from earliest discovery through closing arguments at trial.

Dr. Neels possesses particular expertise in the analysis of spatial economic relationships. His work has addressed questions of geographic market definition, intraurban and interurban travel behavior, relationships between freight transportation costs and product prices, determinants of location decisions and relationships among spatially differentiated products. His work has assisted clients in diverse sections of both the passenger and freight transportation industries.

Among the projects Dr. Neels has successfully concluded are:

- For a group of automobile dealers he conducted an econometric analysis to quantify the extent to which these dealers had suffered economic injury as a

result of a scheme in which executives of the auto manufacturer accepted bribes from a subset of dealers in exchange for providing them with extra allotments of highly profitable car models. The settlement of this litigation awarded a payment of several hundred million dollars to the non-bribe paying dealers.

- For an express package delivery carrier intervening in a rate case before the U.S. Postal Rate Commission he conducted a critical review of econometric studies of cost variability introduced into evidence by a witness testifying on behalf of the U.S. Postal Service. He identified a number of serious conceptual and methodological flaws in this analysis, and demonstrated that the substantive conclusions of the analysis were sensitive to relatively minor change in its design. On the basis of his testimony the Commission rejected the arguments of the Postal Service in the Commission's final ruling.

- For a major international air carrier accused of monopoly leveraging and attempted monopolization of a key market he prepared a report analyzing the carrier's use of corporate discounts and travel agent override commissions to help rebut arguments that these agreements constituted exclusive dealings.

- He played a major role in the preparation of expert testimony on behalf of a group of major domestic oil companies accused of conspiring to depress the prices paid to producers of a major input to tertiary oil recovery projects. This testimony focused on an examination of purchase contracts involving the defendants to establish market prices for the input in question over the alleged damage period.

- For the International Air Transport Association he conducted an analysis and critique of a proposed change in the structure of air traffic control user charges levied on foreign carriers entering the U.S. and overflying its territory. He pointed out a number of serious flaws in the empirical analysis that formed the basis for the new system of charges. Implementation of the new charges was halted by a federal judge.

- For a manufacturer of class III medical devices he conducted a series of statistical analyses of turnover in the population of patients using a number of the company's key products. This analysis produced a profile of how patients clinical situation and needs evolved over time. These results provided the basis for a redirection of the company's product development strategy.

- Working for plaintiffs in an antitrust lawsuit involving the petroleum industry, he prepared an expert report criticizing analyses and testimony of defendants' experts. This report reviewed flaws in defendants' geographic market definition

and rebutted criticisms made by defendant experts of plaintiffs' damage calculations.

- In support of a key economic witness in a hearing regarding refined petroleum product pipeline rates before the Federal Energy Regulatory Commission, he conducted an analysis the relationship between product prices in the different geographic areas linked by the pipeline system. He also examined alternative transportation modes and concentration in the pipeline's origin markets.

- For a major international oil company, he offered advice on econometric issues raised by an empirical study of the determinants of fair market value for a specific grade of crude oil.

- For the U.S. Department of Energy, he conducted an extensive investigation of the technological, institutional and economic factors influencing the demand for residential heating fuels.

- For a Gas Research Institute study of natural gas usage in the steel industry, he provided consultation on statistical issues and worked closely with a team of analysts examining the economics of fuel substitution.

- For a small package express company, he conducted a detailed analysis of the economic incentives created by alternative regulatory frameworks. This effort focused on the effects of proposed regulatory changes on entry by new firms, on the competitive structure of the market and on the potential for cross-subsidy by multi-product firms with diverse offerings.

- He played a critical role in a project for the Air Transport Association (ATA) of the United States to evaluate proposals for reforming the nation's air traffic control (ATC) system and to develop an effective financial and organizational structure for a reformed ATC. The plan, developed under extremely tight deadlines, required an assessment of ATC technological capabilities, estimation of the cost effects of ATC on the airline industry, an economic analysis of current and proposed ATC organizational forms and detailed financial assessment of proposed ATC entities. Dr. Neels presented his analysis and proposal to airline chief executive officers at a meeting of the ATA board.

- Working of behalf of a major air carrier in an antitrust case involving allegations of predatory pricing, he worked directly with the lead litigator to develop a strategy to guide the discovery portion of the case. Subsequently, he conducted a variety of econometric analyses measuring the extent to which plaintiffs were harmed by the alleged predation.

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- For a consortium of major U.S. air carriers accused of engaging in collusion and price fixing, he directed a major economic analysis of industry pricing strategy and dynamics. Drawing upon detailed data on daily fare changes, he prepared testimony and exhibits demonstrating the difficulty of engaging in coordinated pricing behavior.

- For a major U.S. air carrier, he conducted an extensive empirical investigation of the responses of travel agents to carriers' incentive and override programs. Using the results of this investigation, he evaluated his client's sales force management and travel agent incentive strategies to identify specific ways in which redesign and or retargeting could increase their net revenue yields.

- He assisted in the preparation of statistical exhibits and an expert affidavit for submission by a major U.S. carrier in a rulemaking proceeding regarding airline computerized reservation systems conducted by the U.S. Department of Transportation.

- He provided expert deposition testimony on geographic market definition in an antitrust lawsuit between a regional medical center and a physician-owned health clinic. To support his opinions he analyzed the structure of competition between alternative hospitals within the area and conducted an empirical analysis of patient decisions regarding choice of hospital for the service in question.

- For a biotechnology company involved in a trade secret misappropriation dispute with a competitor, he offered expert deposition testimony on potential fields of application for the technology in question and on the factors that influenced customer decisions to incorporate the new technology in their products. As part of this case he also conducted an empirical investigation in the role that technology licensing deals play in the financing of biotechnology start-up companies.

- To support expert testimony in an antitrust case between two major U.S. air carriers he developed and estimated a set of statistical models for estimating the effects of CRS display bias on the booking patterns and revenues of the affected airlines. As part of this effort he conducted an extensive analysis of the histories of the carriers in questions and of the development of computerized reservation systems as the primary channel of distribution for airline tickets. He also prepared damage estimates, assisted in the deposition of opposing expert witness, prepared trial exhibits and advised counsel on cross-examination strategy during the course of the trial.

- He directed the team of economists responsible for conduct of the damages study for plaintiff in a major patent infringement lawsuit in the consumer products industry. His work included development of econometric models to forecast product sales in eight major world markets, analysis of the effects of incremental changes in sales volumes on company profits, review of historical pricing strategies and calculation of economic damages for a wide range of "but-for" pricing and product introduction strategies. He and his team also played a key role in the analysis of the case put forth by the opposing side and in the development of cross-examination strategies for opposing expert witnesses. He was designated as an expert witness in this matter, but was not called upon to testify.

- For the public authority responsible for the operation of one of the largest international gateway airports in the country, he conducted a comprehensive review of sources of information on air cargo movements. Based upon the results of this review, he worked with authority staff to devise a strategy for monitoring trends in shipments by ultimate origin and destination, commodity, carrier and type of service, and for factoring this information into an improved process for planning and executing air cargo facility improvements.

- Working under extreme deadline pressure for a European pharmaceutical company, he estimated savings in total medical costs from pharmacological therapy for chronic occlusive arterial disease in order to provide input to a key regulatory dossier. Results were subsequently published in a peer-reviewed journal.

- To support the development of an airport system plan for a major metropolitan area, he prepared long-range activity forecasts for air carriers, regional airlines and general aviation.

- For the developer of a medical device-based pain management therapy, he conducted a cost-effectiveness analysis for internal use. He built upon this work to develop a reimbursement and marketing strategy for the product.

- For the top management of an emerging health care company, he prepared an analysis and briefing to review the market implications of health care reform and the strategies adopted by competing firms in response.

- For a regional air carrier accused of engaging in predatory pricing, he assisted counsel in defining the relevant product and geographic markets and in developing estimates of the short-run marginal costs of serving those markets. He also prepared evidence on the ease of entry and on the likely behavior and strategies of potential entrants.

- For the operator of a system of outpatient medical clinics, he conducted an analysis of the economic incentives created by investments by referring physicians. His conclusions were summarized in a written report, along with discussion of their implications for policy regarding regulation of such investments by the federal government.

- For a major manufacturer contemplating litigation over an alleged theft of trade secrets, he developed a system of economic forecasting models to calculate the effects of the theft of sales of the company's products in a number of major international markets. Results of this confidential investigation played a key role in the company's subsequent decision to seek redress through the courts.

- For a group of physicians involved in a health insurance-related private antitrust lawsuit he conducted a critical review and analysis of damage models prepared by opposing experts. His findings provided the basis for expert testimony by a leading university-based economist. In addition, he provided assistance to counsel in the deposition of opposing economic experts.

- For the plaintiff in an antitrust suit involving an important line of biotechnology products, he conducted an analysis of therapeutic substitution possibilities to support development of testimony regarding product market definition.

- As leader of a project funded jointly by the Ford Foundation, the U.S. Department of Housing and Urban Development and a consortium of local corporations, he directed a year-long study by the Rand Corporation of strategies for privatizing municipal services in Saint Paul, Minnesota. A major component of this project was a detailed analysis of the incentives created by different financing mechanisms, organizational structures and personnel management systems. Findings of the study were published in a major report entitled *The Entrepreneurial City*.

- For the developer of a new cardiac diagnostic imaging agent, he used meta-analysis and receiver operating characteristic curve techniques to measure the accuracy of procedures using the agent relative to competing diagnostic techniques.

- For an arm of the National Academy of Sciences, he conducted an investigation of the innovation process in medical technology and analyzed how that process has been effected over time by changes in the institutional and economic environment.

- Working under a federally funded research grant, he served as a key staff member of a Rand Corporation study of the equity implications of substituting user charges for tax funding of public services.
- For the developer of a new orphan drug, he conducted a cost-benefit analysis, a review of political and legislative trends and a hedonic analysis of existing orphan drug prices to support development of a defensible pricing strategy.
- For a medical device company, he prepared a payor education brochure describing the results of a cost-effectiveness study of a new therapy, which allows payors to calculate the savings they could realize by granting coverage of the therapy.

Before returning to Charles River Associates to lead our Transportation Practice, Dr. Neels held a variety of responsible positions within the research and consulting industry. He was a vice president at PHB Hagler Bailly, Inc., and the vice president for Health Economics and managing director of the Cambridge office of Quintiles Inc., where he directed a team of economists serving a worldwide clientele of pharmaceutical and biotechnology, and medical device companies. Previously, he was vice president in charge of the pharmaceutical consulting practice at Charles River Associates. He has also served on the research staffs of the Rand Corporation, the Urban Institute and Abt Associates.

PROFESSIONAL AFFILIATIONS

American Economic Association

American Law and Economics Association

National Association of Business Economists

National Health Lawyers Association

International Health Economics Association

Drug Information Association

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PUBLICATIONS AND TESTIMONY

Articles

"Estimating the Effects of Display Bias in Computer Reservation Systems." With Franklin Fisher, In *Microeconomics Essays in Theory and Applications*. Ed. Maarten-Pieter Schinkel. Cambridge University Press, 1999.

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Testimony

Before the U.S. District Court, Northern District of Ohio, Eastern Division, Testimony in the matter of Avery Dennison Corporation vs. Four Pillars Enterprise Co., Ltd., P.Y. Young, Huen-Chan (Sally) Yang and Tenhuong (Victor) Lee, Case No. 1:97 CV. 2282, September 1999.

KEVIN NEELS

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KEVIN NEELS

Before the U.S. District Court, Central District of California, Testimony in the matter of Blecher & Collins vs. Northwest Airlines. Case No. 92-7073-RG (SHx). November 15, 1993.

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Appendix B

Multi-Machine Installations and Changes in Technology Over Time

Equipment Description	PCN	1993	1994	1995	1996	1997	1998
Dockboard/Dockramp, Portable	230000	7.822	7.521	7.619	7.859	3.707	4.316
Platform Elevator/Lift, Portable	230010	9.240	9.406	9.537	9.540	8.572	8.565
Wheel Raiser	230020	1.000	1.333	1.000	1.000	1.000	1.000
Culling Machine	400000	1.436	1.381	1.398	1.418	1.487	1.454
Dual Pass Rough Cull System (DPRCS)	400010	1.304	1.333	1.333	1.333	1.313	1.286
Cancelling Machine, M-36	401000	5.840	5.478	5.850	5.450	5.000	3.600
Cancelling Machine, Mark II	401010	6.679	6.627	6.186	5.912	5.699	5.222
Cancelling/Facing Machine	401020	5.588	5.945	4.487	4.529	4.581	5.976
Cancelling Machine	401030	3.393	3.371	3.303	3.166	3.000	2.954
Canceller Flat	401040	1.821	1.807	1.816	1.824	1.585	1.600
Modification, Mark II Control	401094	1.000	1.000	1.000	1.000	1.000	1.000
Diverter Edger Feeder Attachment	402000	2.754	2.724	2.579	2.545	3.000	2.875
Edger Feeder	402010	6.416	6.313	5.785	5.556	5.220	4.696
Edger Stacker	402020	1.606	1.588	1.606	1.516	1.536	1.500
Inclined Feeder Assembly	402030	7.207	7.022	6.816	6.605	5.385	4.243
Stacker Unit	402040	1.680	1.640	1.717	1.673	2.071	2.036
Vibrator Hopper Assembly	402050	4.000	4.000	1.833	1.571	1.429	1.429
Conveyor	420000	17.303	18.260	19.153	20.058	16.242	16.285
Conveyor, Extendible	420010	3.034	3.066	2.906	2.939	2.522	2.483
Conveyor, Tractor	420030	2.333	2.333	1.833	1.857	1.857	1.875
Dumper, Hamper	420050	5.057	5.336	5.975	6.379	6.565	6.809
Rack, Tray Storage	421000	7.077	6.814	6.340	6.451	3.129	3.133
Strapping Machine, Non-Metallic	422000	9.259	9.467	9.397	9.498	8.238	8.003
Strapping System	422010	4.010	5.004	5.263	5.611	5.498	5.456
Tying Machine	422020	4.962	4.778	5.480	5.357	6.333	5.885
Tractor, Attachments & Accessories	423000	3.034	2.967	4.353	4.179	2.029	2.054
Tractor, Industrial & Farm Type	423010	1.133	1.121	1.121	1.088	1.056	1.077
Tractor, Tow/Tug/Warehouse	423020	9.945	10.255	11.005	11.475	11.435	11.896
Tractor, W/Auto Guidance System	423030	2.444	2.444	2.444	2.750	2.417	2.200
Truck, Fork Lift	423040	5.828	5.943	6.045	6.318	7.174	8.344
Truck, Hand Lift/Pallet	423050	4.436	4.617	5.196	5.576	6.159	6.844
Truck, Lift Specialized System	423060	1.877	1.729	1.773	1.974	2.095	2.247
Carrier, Cargo & Materials	440000	3.267	4.529	4.294	4.235	3.556	3.286
Carrier, Personnel	440010	3.906	3.853	4.200	4.278	3.781	3.667
Scooter	440020	1.364	1.364	1.222	1.222	2.000	2.600
Label Printing System	441000	2.667	4.107	4.277	4.281	3.847	3.656
Printer, Address Label	441010	4.162	4.415	4.566	4.383	2.375	2.133
Dispenser, Label	441020	3.304	3.120	2.354	2.195	1.415	1.338
Feeder, Label Printer	441030	1.333	1.333	1.600	1.600	1.600	1.600
Dispenser, Tape	442000	1.000	1.000	1.000	1.000	1.000	1.000
Rewrap Or Patch-Up Equipment	442010	1.944	1.923	1.905	1.907	1.825	1.693
Scale, Floor Or Platform	443000	4.613	4.730	4.763	4.795	3.276	3.375
Scale, Remote Console/Indicator	443010	2.196	2.185	2.339	2.242	2.192	2.111
Envelope Stuffer / Sealer System	444000	1.125	1.100	1.100	1.100	1.111	1.125
Bulk Conveyor	900000	2.407	2.492	2.366	2.419	2.397	2.449
Fixed Mech Memory Cont Sys	900010	2.286	2.125	3.444	3.444	2.111	2.111
Loose Mail Conveyor System	900020	1.848	1.857	2.022	1.891	1.776	1.784
Mail Preparation System	900030	1.521	1.566	1.615	1.759	2.145	1.982
Monorail Sorting System	900035	3.158	3.050	3.158	3.333	3.294	1.857
Multibelt Sorting System	900040	1.000	1.000	1.000	1.000	1.000	1.000
Multi-Slide	900050	1.396	1.396	1.435	1.476	1.487	1.500
Pallet Unloader	900060	2.263	2.426	2.571	2.723	2.681	2.862
PP Distribution Ring	900070	1.273	1.273	1.273	1.300	1.222	1.286
Tray Transport System	900080	2.468	2.632	2.604	2.725	2.539	2.653
Letter Sorting Machine, Multi Pos	910000	7.012	7.727	7.698	7.484	5.284	3.603
Letter Sorting Machine, Single Pos	910010	2.900	4.275	4.556	4.581	2.938	5.207
LSM Tray Conveyor System	910020	1.611	1.526	1.524	1.524	1.444	1.533

Appendix B

Equipment Description	PCN	1993	1994	1995	1996	1997	1998
LSM - Zip Mail Translator	910030	2.325	2.325	2.260	1.986	1.783	2.481
LSM - Electronic Sort Processor	910034	1.935	1.987	2.000	1.881	1.764	1.640
LSM - Expanded Zip Retrofit	910091	2.273	3.217	3.364	1.738	1.469	1.366
LSM - EZR Maintenance Terminal	910092	1.175	1.175	1.190	1.190	1.167	1.000
LSM Misc Modification Cost	910093	2.417	2.417	2.455	2.455	1.400	1.444
LSM - Vacuum System	910094	1.815	1.841	1.855	1.717	1.478	1.371
Flat Sorter Machine	920000	5.631	8.614	9.546	9.621	9.693	11.329
Flat Sorter Bin Unit	920010	1.667	1.667	1.667	1.667	N/A	N/A
Flat Sorter Cull Unit	920020	1.400	1.208	1.167	1.167	1.000	N/A
Flat Sorter Extractor Unit	920030	2.333	2.333	2.333	2.333	2.500	2.500
Flat Sorter Feed Unit	920040	1.867	1.867	1.793	1.821	1.727	1.619
Parcel Sorting Machine	930000	3.714	2.640	1.463	1.576	1.638	1.932
Small Parcel/Bundle Sorter System	930040	4.016	4.081	3.922	4.078	5.000	5.576
Small Parcel/Roll Sorter System	930050	1.200	1.167	1.222	1.364	1.333	1.313
Sack Sorting Machine	940000	2.500	2.771	2.378	2.467	2.568	2.674
Sack Sort Mach Modification	940099	1.600	1.600	1.250	1.250	1.250	1.250
Bar Code Reader	950000	15.780	19.339	18.490	17.847	9.716	9.648
Small Bar Code Sorter (SBCS)	950010	7.323	7.411	7.400	7.885	9.878	17.029
Delivery Bar Code Sorters (DBCS)	950020	6.743	14.964	20.015	24.773	25.261	26.621
Reader, Optical Character	960000	2.950	3.440	3.574	3.352	4.000	4.638
Reader, Optical Character (OCR/CS)	960010	5.715	6.462	7.031	8.048	9.797	18.613
Remote Bar Coding Image Process Sys	960020	1.000	1.087	1.103	1.123	1.845	2.665
BMC Container Loader/Unloader	970000	3.714	3.714	2.667	8.800	4.464	2.676
Loader/Unloader Modifcation	970009	1.000	1.000	1.000	1.000	1.000	N/A
BMC Inbound-Outbound Tow Conveyor	970010	4.000	4.000	3.000	3.000	3.000	3.000
BMC Parcel Sorting Induction Unit	970020	3.667	3.667	1.000	1.000	1.000	1.000
BMC Parcel Sorting Machine	970022	4.000	24.000	1.000	1.000	1.000	1.333
BMC Parcel Sorting Mach Mod Cost	970029	4.000	4.000	N/A	N/A	N/A	N/A
BMC Process Control System	970030	2.500	2.714	2.000	1.714	1.500	2.875
BMC Sack Shakeout Machine	970040	3.000	3.000	N/A	N/A	N/A	N/A
BMC Sack Sorter And Loader	970050	10.750	10.750	1.500	1.500	1.750	2.000
BMC Towveyor - Internal Tow Conv	970060	2.333	2.667	1.000	1.000	1.000	1.000
BMC Towveyor - Wearbar Lubricator	970062	1.000	1.000	N/A	N/A	N/A	N/A
Install Cost, Non-Fixed Mechanization	999998	2.181	2.181	2.174	2.202	2.180	2.045
Installation Cost Fixed Mechanization	999999	1.149	1.149	1.071	1.075	1.190	1.507

Source: Data from MPE93.txt-MPE98.txt in USPS-LR-I-244.

Appendix C

MODS Group OCR

Dependent Variable: FHP

Variable	Full Specification	Partial Specification
TPH	0.725	1.292
	(0.053)	(0.016)
TPH2	-0.005	-0.027
	(0.003)	(0.001)
DPT	0.266	
	(0.022)	
T7	-0.065	
	(0.022)	
T8	-0.123	
	(0.032)	
T9	-0.100	
	(0.038)	
T10	-0.085	
	(0.041)	
T11	-0.134	
	(0.042)	
T12	-0.181	
	(0.044)	
T13	-0.163	
	(0.044)	
T14	-0.154	
	(0.045)	
T15	-0.190	
	(0.045)	
T16	-0.244	
	(0.045)	
T17	-0.234	
	(0.045)	
T18	-0.201	
	(0.045)	
T19	-0.276	
	(0.044)	
T20	-0.320	
	(0.045)	
T21	-0.295	
	(0.045)	
T22	-0.246	
	(0.045)	
T23	-0.281	
	(0.046)	
T24	-0.341	
	(0.046)	
Adj. R2	0.972	0.970

Notes and Sources:

1. Data from reg9398.xls and fhp9398.xls, in USPS-LR-I-107 and USPS-LR-I-186, respectively.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation within panels. Standard errors shown in parentheses.

Appendix C

MODS Group LSM

Dependent Variable: FHP

Variable	Full Specification	Partial Specification
TPH	0.625	0.706
	(0.072)	(0.027)
TPH2	0.015	0.016
	(0.004)	(0.002)
DPT	0.074	
	(0.029)	
T7	-0.097	
	(0.092)	
T8	-0.152	
	(0.145)	
T9	-0.130	
	(0.178)	
T10	-0.054	
	(0.199)	
T11	-0.135	
	(0.212)	
T12	-0.180	
	(0.221)	
T13	-0.128	
	(0.226)	
T14	-0.053	
	(0.229)	
T15	-0.116	
	(0.231)	
T16	-0.181	
	(0.233)	
T17	-0.263	
	(0.234)	
T18	-0.228	
	(0.235)	
T19	-0.370	
	(0.237)	
T20	-0.624	
	(0.239)	
T21	-0.596	
	(0.243)	
T22	-0.612	
	(0.243)	
T23	-0.886	
	(0.246)	
T24	-0.976	
	(0.254)	
Adj. R2	0.898	0.895

Notes and Sources:

1. Data from reg9398.xls and fhp9398.xls, in USPS-LR-I-107 and USPS-LR-I-186, respectively.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation within panels. Standard errors shown in parentheses.

Appendix C

MODS Group BCS

Dependent Variable: FHP

Variable	Full Specification	Partial Specification
TPH	0.787	1.196
	(0.056)	(0.010)
TPH2	-0.013	-0.023
	(0.002)	(0.001)
DPT	0.267	
	(0.027)	
T7	0.022	
	(0.016)	
T8	0.018	
	(0.022)	
T9	0.055	
	(0.026)	
T10	0.058	
	(0.028)	
T11	0.066	
	(0.029)	
T12	0.049	
	(0.03)	
T13	0.100	
	(0.03)	
T14	0.086	
	(0.031)	
T15	0.103	
	(0.031)	
T16	0.132	
	(0.031)	
T17	0.208	
	(0.031)	
T18	0.201	
	(0.031)	
T19	0.204	
	(0.032)	
T20	0.192	
	(0.031)	
T21	0.258	
	(0.032)	
T22	0.260	
	(0.032)	
T23	0.295	
	(0.032)	
T24	0.238	
	(0.032)	
Adj. R2	0.984	0.982

Notes and Sources:

1. Data from reg9398.xls and fhp9398.xls, in USPS-LR-I-107 and USPS-LR-I-186, respectively.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation within panels. Standard errors shown in parentheses.

Appendix C

MODS Group FSM

Dependent Variable: FHP

Variable	Full Specification	Partial Specification
TPH	1.213	1.086
	(0.05)	(0.009)
TPH2	-0.029	-0.011
	(0.003)	(0.001)
DPT	0.041	
	(0.019)	
T7	0.070	
	(0.014)	
T8	0.024	
	(0.019)	
T9	0.094	
	(0.021)	
T10	0.048	
	(0.022)	
T11	0.089	
	(0.023)	
T12	0.020	
	(0.023)	
T13	0.104	
	(0.023)	
T14	0.050	
	(0.023)	
T15	0.082	
	(0.023)	
T16	0.020	
	(0.023)	
T17	0.129	
	(0.023)	
T18	0.064	
	(0.023)	
T19	0.115	
	(0.023)	
T20	0.084	
	(0.023)	
T21	0.179	
	(0.023)	
T22	0.127	
	(0.023)	
T23	0.183	
	(0.023)	
T24	0.136	
	(0.023)	
Adj. R2	0.991	0.987

Notes and Sources:

1. Data from reg9398.xls and fhp9398.xls, in USPS-LR-I-107 and USPS-LR-I-186, respectively.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation within panels. Standard errors shown in parentheses.

Appendix C

MODS Group Manual Flats

Dependent Variable: FHP

Variable	Full Specification	Partial Specification
TPH	1.255	0.919
	(0.037)	(0.007)
TPH2	-0.015	0.006
	(0.002)	(0.001)
DPT	-0.106	
	(0.013)	
T7	-0.001	
	(0.008)	
T8	-0.007	
	(0.014)	
T9	0.011	
	(0.018)	
T10	0.006	
	(0.022)	
T11	0.004	
	(0.025)	
T12	0.008	
	(0.028)	
T13	0.012	
	(0.031)	
T14	0.009	
	(0.033)	
T15	0.010	
	(0.035)	
T16	0.009	
	(0.036)	
T17	0.016	
	(0.038)	
T18	0.001	
	(0.039)	
T19	-0.005	
	(0.04)	
T20	-0.018	
	(0.041)	
T21	-0.005	
	(0.042)	
T22	-0.033	
	(0.043)	
T23	-0.055	
	(0.043)	
T24	-0.084	
	(0.044)	
Adj. R2	0.986	0.986

Notes and Sources:

1. Data from reg9398.xls and fhp9398.xls, in USPS-LR-I-107 and USPS-LR-I-186, respectively.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation within panels. Standard errors shown in parentheses.

Appendix C

MODS Group Manual Letters

Dependent Variable: FHP

Variable	Full Specification	Partial Specification
TPH	1.038	1.037
	(0.038)	(0.007)
TPH2	-0.011	-0.009
	(0.002)	(0.001)
DPT	0.011	
	(0.015)	
T7	-0.024	
	(0.011)	
T8	-0.053	
	(0.017)	
T9	-0.020	
	(0.022)	
T10	-0.046	
	(0.025)	
T11	-0.064	
	(0.028)	
T12	-0.079	
	(0.03)	
T13	-0.036	
	(0.031)	
T14	-0.061	
	(0.032)	
T15	-0.068	
	(0.033)	
T16	-0.079	
	(0.033)	
T17	-0.025	
	(0.034)	
T18	-0.033	
	(0.034)	
T19	-0.040	
	(0.034)	
T20	-0.050	
	(0.034)	
T21	-0.026	
	(0.034)	
T22	-0.049	
	(0.035)	
T23	-0.067	
	(0.035)	
T24	-0.090	
	(0.035)	
Adj. R2	0.990	0.989

Notes and Sources:

1. Data from reg9398.xls and fhp9398.xls, in USPS-LR-I-107 and USPS-LR-I-186, respectively.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation within panels. Standard errors shown in parentheses.

Appendix C

MODS Group Priority

Dependent Variable: FHP

Variable	Full Specification	Partial Specification
TPH	1.032	1.013
	(0.01)	(0.005)
TPH2	-0.003	-0.002
	(0.001)	(0.000)
DPT	-0.003	
	(0.003)	
T7	0.010	
	(0.007)	
T8	0.010	
	(0.008)	
T9	0.014	
	(0.009)	
T10	0.018	
	(0.009)	
T11	0.010	
	(0.009)	
T12	0.013	
	(0.009)	
T13	0.020	
	(0.009)	
T14	0.019	
	(0.009)	
T15	0.024	
	(0.009)	
T16	0.010	
	(0.009)	
T17	0.016	
	(0.009)	
T18	0.021	
	(0.009)	
T19	0.013	
	(0.009)	
T20	0.016	
	(0.009)	
T21	0.017	
	(0.009)	
T22	0.021	
	(0.009)	
T23	0.018	
	(0.009)	
T24	0.015	
	(0.009)	
Adj. R2	0.998	0.998

Notes and Sources:

1. Data from reg9398.xls and fhp9398.xls, in USPS-LR-I-107 and USPS-LR-I-186, respectively.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation within panels. Standard errors shown in parentheses.

Shape Group Letters
Dependent Variable: FHP

Variable	Full Specification	Partial Specification
TPH	1.140	1.307
	(0.077)	(0.013)
TPH2	-0.026	-0.029
	(0.003)	(0.001)
DPT	0.122	
	(0.038)	
T7	-0.037	
	(0.013)	
T8	-0.068	
	(0.014)	
T9	-0.023	
	(0.014)	
T10	-0.007	
	(0.014)	
T11	-0.052	
	(0.014)	
T12	-0.039	
	(0.014)	
T13	-0.022	
	(0.014)	
T14	-0.014	
	(0.014)	
T15	-0.033	
	(0.014)	
T16	-0.043	
	(0.014)	
T17	0.010	
	(0.014)	
T18	0.017	
	(0.015)	
T19	-0.013	
	(0.014)	
T20	-0.045	
	(0.014)	
T21	0.000	
	(0.014)	
T22	0.013	
	(0.015)	
T23	0.021	
	(0.015)	
T24	-0.046	
	(0.014)	
Adj. R2	0.987	0.987

Notes and Sources:

1. Data from reg9398.xls and fhp9398.xls, in USPS-LR-I-107 and USPS-LR-I-186, respectively.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation within panels. Standard errors shown in parentheses.

Appendix D

Shape Group Flats

Dependent Variable: FHP

Variable	Full Specification	Partial Specification
TPH	0.897	1.036
	(0.036)	(0.007)
TPH2	-0.007	-0.027
	(0.002)	(0.001)
DPT	0.117	
	(0.015)	
T7	0.035	
	(0.014)	
T8	-0.005	
	(0.007)	
T9	0.045	
	(0.011)	
T10	0.011	
	(0.011)	
T11	0.035	
	(0.011)	
T12	-0.013	
	(0.011)	
T13	0.046	
	(0.011)	
T14	0.006	
	(0.011)	
T15	0.026	
	(0.011)	
T16	-0.014	
	(0.011)	
T17	0.064	
	(0.011)	
T18	0.014	
	(0.011)	
T19	0.043	
	(0.011)	
T20	0.019	
	(0.011)	
T21	0.091	
	(0.011)	
T22	0.048	
	(0.011)	
T23	0.081	
	(0.011)	
T24	0.044	
	(0.011)	
Adj. R2	0.996	0.994

Notes and Sources:

1. Data from reg9398.xls and fhp9398.xls, in USPS-LR-I-107 and USPS-LR-I-186, respectively.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation within panels. Standard errors shown in parentheses.

Appendix D

Shape Group Parcels

Dependent Variable: FHP

Variable	Full Specification	Partial Specification
TPH	1.062	1.221
	(0.101)	(0.028)
TPH2	-0.032	-0.042
	(0.008)	(0.003)
DPT	0.039	
	(0.027)	
T7	-0.055	
	(0.039)	
T8	-0.168	
	(0.058)	
T9	-0.169	
	(0.071)	
T10	-0.107	
	(0.081)	
T11	-0.150	
	(0.088)	
T12	-0.179	
	(0.093)	
T13	-0.153	
	(0.096)	
T14	-0.083	
	(0.099)	
T15	-0.166	
	(0.101)	
T16	-0.216	
	(0.103)	
T17	-0.184	
	(0.105)	
T18	-0.189	
	(0.107)	
T19	-0.314	
	(0.108)	
T20	-0.202	
	(0.109)	
T21	-0.296	
	(0.110)	
T22	-0.316	
	(0.110)	
T23	-0.429	
	(0.111)	
T24	-0.564	
	(0.112)	
Adj. R2	0.798	0.792

Notes and Sources:

1. Data from reg9398.xls and fhp9398.xls, in USPS-LR-I-107 and USPS-LR-I-186, respectively.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation within panels. Standard errors shown in parentheses.

Appendix E

Wage Regression Results: Letters

Missing wage values filled with predicted wages from this regression.
Sample size increased from 6834 to 7296.
R2 = 0.750

Site	Bhat	Se
1	3.177	0.566
2	3.245	0.566
3	3.166	0.566
4	3.176	0.566
5	3.151	0.566
6	3.175	0.566
7	3.182	0.566
8	3.133	0.566
9	3.209	0.566
10	3.112	0.566
11	3.256	0.566
12	3.213	0.566
13	3.167	0.566
14	3.280	0.566
15	3.167	0.566
16	3.210	0.566
19	3.247	0.566
20	3.197	0.566
21	3.176	0.566
22	3.155	0.578
23	3.180	0.566
24	3.208	0.566
25	3.230	0.566
26	3.145	0.566
28	3.164	0.566
29	3.161	0.566
30	3.163	0.566
31	3.131	0.566
32	3.208	0.578
33	3.211	0.648
34	3.271	0.648
35	3.146	0.566
36	3.228	0.756
38	3.133	0.566
39	3.123	0.566
40	3.284	0.685
42	3.208	0.566
43	3.003	0.566
44	3.216	0.706
45	3.148	0.566
46	3.186	0.566
47	3.204	0.566
48	3.181	0.566
49	3.156	0.566
50	3.142	0.566
51	3.088	0.566
52	3.148	0.566
53	3.122	0.566
55	3.144	0.566
57	3.049	0.857
58	3.203	0.566
59	3.208	0.566
60	3.144	0.566
61	3.202	0.566
62	3.218	0.566
63	3.153	0.566
64	3.211	0.566
65	3.198	0.566
66	3.143	0.566
67	3.176	0.566
68	3.172	0.566
69	3.147	0.566
70	3.153	0.566
71	3.190	0.566
72	3.136	0.566
73	3.157	0.566
74	3.217	0.566
75	3.130	0.566
76	3.220	0.566
77	3.129	0.566
78	3.244	0.578
79	3.158	0.566
80	3.227	0.566
81	3.150	0.566
82	3.080	0.566
83	3.206	0.566
84	3.181	0.566
85	3.138	0.566
86	3.247	0.616
88	3.130	0.902
89	3.226	0.566
90	3.184	0.566
91	3.141	0.566
92	3.160	0.566
93	3.171	0.566
94	3.161	0.955
95	3.170	0.566
96	3.093	0.566
97	3.172	0.566
98	3.099	0.566
99	3.096	0.566
100	3.168	0.566
101	3.129	0.648
102	3.118	0.566
103	3.106	0.566
104	3.204	0.602
105	3.127	0.566
106	3.093	1.023
107	3.103	0.566
108	3.151	0.566
109	3.221	0.706
110	3.157	0.566
111	3.172	0.566
112	3.148	0.566
113	3.134	0.578
114	3.165	0.566
115	3.133	0.566
116	3.098	0.566
117	3.228	0.860
118	3.177	0.566
119	3.115	0.566
121	3.082	2.670
122	3.131	0.566
123	3.144	0.566
124	3.220	2.679
125	3.191	0.566
127	3.135	0.648
128	3.135	0.566
129	3.144	0.566
130	3.160	0.566

Appendix E

Site	Bhat	Se
131	3.159	0.566
132	3.197	0.566
133	3.202	0.566
134	3.146	0.566
135	3.183	0.566
136	3.152	0.566
137	3.164	0.566
138	3.218	0.566
139	3.132	0.566
140	3.121	0.566
141	3.141	0.566
142	3.240	0.566
143	3.109	0.566
144	3.209	0.566
145	3.110	0.566
146	3.216	0.566
147	3.127	0.566
148	3.144	0.566
149	3.177	0.566
150	3.124	0.566
151	3.097	0.566
152	2.982	0.566
153	3.133	0.566
154	3.175	0.566
155	3.220	0.566
156	3.129	0.566
157	3.125	0.590
158	3.134	0.566
159	3.143	0.566
160	3.105	0.579
161	3.047	0.566
162	3.132	0.566
163	3.139	0.566
164	3.091	0.566
165	3.195	0.566
166	3.095	0.566
167	3.186	0.566
168	3.104	0.566
169	3.081	0.566
170	3.130	0.566
171	3.152	0.566
172	3.134	0.566
173	3.125	0.590
174	3.162	0.566
175	3.088	0.566
176	3.178	0.566
177	3.112	0.590
178	3.204	0.566
179	3.105	0.566
180	3.119	0.566
181	3.159	0.566
182	3.127	0.566
183	3.025	0.566
184	3.118	0.566
185	3.058	0.578
186	3.049	0.566
187	3.156	0.566
188	3.106	0.566
189	3.036	0.578
190	3.154	0.566
191	3.095	0.616
192	3.096	0.592
193	3.251	0.566
194	3.112	0.566
195	3.160	0.566
196	3.014	0.633
198	3.178	0.566
199	3.152	0.566
200	3.080	0.566
201	3.112	0.566
202	3.112	0.566
203	3.137	0.566
204	3.155	0.566
205	3.181	0.566
206	3.154	0.566
207	3.137	0.566
208	3.203	0.566
209	3.165	0.566
210	3.168	0.566
211	3.151	0.566
212	3.233	0.566
213	3.161	0.566
214	3.195	0.566
215	3.224	0.566
216	3.185	0.566
217	3.157	0.566
219	3.184	0.566
220	3.187	0.631
221	3.161	2.679
222	3.200	0.566
223	3.145	0.566
224	3.218	0.566
225	3.121	0.566
226	3.160	0.566
227	3.143	0.631
228	3.187	1.547
229	3.148	0.566
230	3.155	0.566
233	3.240	0.822
234	3.141	0.566
235	3.220	1.897
236	3.047	0.955
237	3.204	0.566
238	3.081	0.566
239	3.168	0.566
240	3.125	0.857
241	3.173	0.566
242	3.116	0.566
243	3.162	0.566
244	3.079	0.706
245	3.157	0.566
246	3.198	1.898
247	3.189	0.566
249	3.136	0.566
250	3.171	0.566
251	3.114	0.685
252	3.126	0.685
253	3.200	0.566
254	3.173	0.566
255	3.179	0.566
256	3.054	0.602
257	3.169	0.602
258	3.132	0.566
259	3.193	0.566
260	3.125	0.566
261	3.154	0.616
262	3.176	0.566
263	3.132	2.679
264	3.171	0.566
265	3.133	0.959
268	3.137	0.566
269	3.227	0.566
270	3.161	0.566
271	3.139	0.566
272	3.120	0.566
273	3.149	0.566
274	3.078	0.566
275	3.147	0.566
276	3.193	0.566
277	3.158	0.566
278	3.133	0.566
279	3.069	0.566
280	3.214	0.566
281	3.158	0.566

Appendix E

Site	Bhat	Se
282	3.129	0.566
283	3.216	0.566
284	3.189	0.566
285	3.257	0.566
286	3.131	0.566
287	3.111	0.566
288	3.202	0.566
289	3.233	0.566
290	3.091	0.566
291	3.080	0.566
292	3.099	0.566
293	3.211	0.566
294	3.127	0.566
295	3.109	0.566
296	3.108	0.566
297	3.294	0.566
298	3.139	0.566
299	3.184	0.566
300	3.124	0.566
301	3.102	1.206
302	3.127	0.566
303	3.134	0.602
304	3.117	0.566
305	3.159	0.566
306	3.155	0.602
307	3.179	0.566
308	3.144	0.566
309	3.124	0.566
310	3.155	0.566
311	3.206	0.578
312	3.185	0.566
313	3.128	0.590
314	3.159	0.566
315	3.214	0.566
316	3.136	0.566
317	3.198	0.566
318	3.144	0.616
319	3.204	0.566
320	3.067	0.566
321	3.125	0.579

Period	Bhat	Se
2	0.002	0.222
3	0.023	0.222
4	0.029	0.222
5	0.010	0.222
6	0.011	0.222
7	0.036	0.222
8	0.045	0.222
9	0.023	0.222
10	0.006	0.222
11	0.024	0.223
12	0.044	0.223
13	0.033	0.223
14	0.035	0.223
15	0.058	0.223
16	0.079	0.223
17	0.068	0.224
18	0.049	0.224
19	0.077	0.225
20	0.096	0.225
21	0.079	0.227
22	0.069	0.226
23	0.105	0.226
24	0.119	0.227

Notes and Source:

1. Data from reg9398.xls in USPS-LR-I-107.
2. Parameters estimated using Ordinary Least Squares.

Appendix E

Wage Regression Results: Flats

Missing wage values filled with predicted wages from this regression.
Sample size increased from 6858 to 7296.
R2 = 0.715

Site	Bhat	Se	Site	Bhat	Se	Site	Bhat	Se
1	3.248	0.630	47	3.227	0.630	91	3.161	0.630
2	3.255	0.630	48	3.189	0.630	92	3.180	0.630
3	3.204	0.630	49	3.231	0.630	93	3.192	0.630
4	3.223	0.630	50	3.153	0.630	94	3.165	1.063
5	3.202	0.630	51	3.145	0.630	95	3.189	0.630
6	3.180	0.630	52	3.144	0.630	96	3.147	0.630
7	3.202	0.630	53	3.122	0.630	97	3.178	0.630
8	3.183	0.630	55	3.164	0.630	98	3.151	0.630
9	3.202	0.630	57	3.070	0.954	99	3.096	0.630
10	3.151	0.630	58	3.234	0.630	100	3.186	0.630
11	3.276	0.630	59	3.213	0.630	101	3.143	0.720
12	3.272	0.630	60	3.197	0.630	102	3.151	0.630
13	3.219	0.630	61	3.204	0.630	103	3.136	0.630
14	3.303	0.630	62	3.237	0.630	104	3.251	0.670
15	3.204	0.630	63	3.136	0.630	105	3.125	0.630
16	3.268	0.630	64	3.222	0.630	106	3.109	1.138
19	3.277	0.630	65	3.231	0.630	107	3.116	0.630
20	3.207	0.630	66	3.172	0.630	108	3.172	0.630
21	3.217	0.630	67	3.172	0.630	109	3.256	0.785
22	3.179	0.642	68	3.196	0.630	110	3.171	0.630
23	3.204	0.630	69	3.192	0.630	111	3.216	0.630
24	3.248	0.630	70	3.227	0.630	112	3.151	0.630
25	3.320	0.630	71	3.222	0.630	113	3.156	0.642
26	3.187	0.630	72	3.148	0.630	114	3.208	0.630
28	3.199	0.630	73	3.195	0.630	115	3.140	0.630
29	3.175	0.630	74	3.267	0.630	116	3.112	0.630
30	3.199	0.630	75	3.164	0.630	117	3.240	0.642
31	3.141	0.630	76	3.246	0.630	118	3.168	0.630
32	3.240	0.642	77	3.139	0.630	119	3.159	0.630
33	3.259	0.720	78	3.275	0.642	121	3.111	2.971
34	3.294	0.720	79	3.195	0.630	122	3.165	0.630
35	3.167	0.630	80	3.242	0.630	123	3.226	0.630
36	3.251	0.841	81	3.176	0.630	124	3.255	2.981
38	3.108	0.630	82	3.099	0.630	125	3.227	0.630
39	3.162	0.630	83	3.216	0.630	127	3.149	0.720
40	3.319	0.762	84	3.183	0.630	128	3.137	0.630
42	3.219	0.630	85	3.161	0.630	129	3.197	0.630
43	3.109	0.630	86	3.262	0.686	130	3.178	0.630
44	3.214	0.785	88	3.188	1.004	131	3.200	0.630
45	3.160	0.630	89	3.304	0.630	132	3.241	0.630
46	3.173	0.630	90	3.201	0.630	133	3.252	0.630

Appendix E

Site	Bhat	Se
134	3.176	0.630
135	3.220	0.630
136	3.168	0.630
137	3.185	0.630
138	3.257	0.630
139	3.177	0.630
140	3.145	0.630
141	3.220	0.630
142	3.265	0.630
143	3.161	0.630
144	3.206	0.630
145	3.111	0.630
146	3.286	0.630
147	3.116	0.630
148	3.166	0.630
149	3.222	0.630
150	3.174	0.630
151	3.083	0.630
152	3.052	0.630
153	3.144	0.630
154	3.196	0.630
155	3.278	0.630
156	3.183	0.630
157	3.134	0.656
158	3.147	0.630
159	3.171	0.630
160	3.120	0.630
161	3.089	0.630
162	3.207	0.630
163	3.183	0.630
164	3.146	0.630
165	3.244	0.630
166	3.139	0.630
167	3.204	0.630
168	3.132	0.630
169	3.113	0.630
170	3.147	0.630
171	3.162	0.630
172	3.120	0.630
173	3.134	0.656
174	3.174	0.630
175	3.117	0.630
176	3.214	0.630
177	3.146	0.642
178	3.220	0.630
179	3.095	0.630
180	3.136	0.630
181	3.174	0.630
182	3.239	0.630
183	3.081	0.630
184	3.147	0.630
185	3.137	0.630
186	3.043	0.630
187	3.176	0.630
188	3.145	0.630
189	3.083	0.642
190	3.188	0.630
191	3.091	0.686
192	3.135	0.658
193	3.275	0.630
194	3.164	0.630
195	3.174	0.630
196	3.063	0.705
198	3.217	0.630
199	3.155	0.630
200	3.108	0.630
201	3.155	0.630
202	3.127	0.630
203	3.185	0.630
204	3.202	0.630
205	3.195	0.630
206	3.190	0.630
207	3.165	0.630
208	3.202	0.630
209	3.195	0.630
210	3.188	0.630
211	3.162	0.630
212	3.265	0.630
213	3.175	0.630
214	3.213	0.630
215	3.237	0.630
216	3.186	0.630
217	3.223	0.630
219	3.216	0.630
220	3.204	0.702
221	3.195	2.981
222	3.222	0.630
223	3.177	0.630
224	3.231	0.630
225	3.144	0.630
226	3.203	0.630
227	3.181	0.702
228	3.207	1.721
229	3.175	0.630
230	3.164	0.630
233	3.267	0.702
234	3.164	0.630
235	3.237	2.111
236	3.080	1.063
237	3.230	0.630
238	3.092	0.630
239	3.184	0.630
240	3.152	0.954
241	3.190	0.630
242	3.121	0.630
243	3.159	0.630
244	3.125	0.785
245	3.183	0.630
246	3.232	2.112
247	3.227	0.630
249	3.149	0.630
250	3.187	0.630
251	3.145	0.762
252	3.146	0.762
253	3.212	0.630
254	3.182	0.630
255	3.180	0.630
256	3.080	0.670
257	3.198	0.670
258	3.148	0.630
259	3.189	0.630
260	3.158	0.630
261	3.169	0.686
262	3.199	0.630
263	3.143	2.981
264	3.178	0.630
265	3.153	1.067
268	3.189	0.630
269	3.243	0.630
270	3.241	0.630
271	3.198	0.630
272	3.188	0.630
273	3.180	0.630
274	3.127	0.630
275	3.195	0.630
276	3.203	0.630
277	3.226	0.630
278	3.190	0.630
279	3.098	0.630
280	3.252	0.630
281	3.201	0.630
282	3.201	0.630
283	3.248	0.630
284	3.235	0.630

Appendix E

Site	Bhat	Se
285	3.271	0.630
286	3.155	0.630
287	3.135	0.630
288	3.240	0.630
289	3.247	0.630
290	3.145	0.630
291	3.133	0.630
292	3.119	0.630
293	3.229	0.630
294	3.189	0.630
295	3.133	0.630
296	3.114	0.630
297	3.343	0.630
298	3.155	0.630
299	3.216	0.630
300	3.133	0.630
301	3.152	1.342
302	3.156	0.630
303	3.189	0.670
304	3.136	0.630
305	3.189	0.630
306	3.165	0.670
307	3.224	0.630
308	3.145	0.630
309	3.151	0.630
310	3.186	0.630
311	3.234	0.642
312	3.228	0.630
313	3.141	0.656
314	3.195	0.630
315	3.232	0.630
316	3.172	0.630
317	3.213	0.630
318	3.166	0.686
319	3.237	0.630
320	3.130	0.630
321	3.189	0.644

Period	Bhat	Se
2	-0.003	0.246
3	0.021	0.245
4	0.027	0.246
5	0.001	0.246
6	-0.003	0.246
7	0.028	0.246
8	0.040	0.246
9	0.016	0.246
10	-0.006	0.246
11	0.018	0.247
12	0.038	0.247
13	0.026	0.247
14	0.024	0.247
15	0.054	0.247
16	0.077	0.248
17	0.064	0.248
18	0.038	0.249
19	0.075	0.249
20	0.092	0.250
21	0.068	0.252
22	0.046	0.251
23	0.093	0.251
24	0.104	0.252

Notes and Source:

1. Data from reg9398.xls in USPS-LR-I-107.
2. Parameters estimated using Ordinary Least Squares.

Appendix E

Wage Regression Results: Parcels

Missing wage values filled with predicted wages from this regression.
Sample size increased from 3895 to 7056.
R2 = 0.725

Site	Bhat	Se
1	3.173	0.618
2	3.186	0.618
3	3.109	0.618
4	3.130	0.642
5	3.079	0.618
6	3.085	0.618
7	3.145	0.618
8	3.079	0.618
9	3.109	0.618
10	3.048	0.726
11	3.219	0.618
12	3.144	1.182
13	3.124	0.794
14	3.267	0.618
15	3.096	0.618
16	3.201	0.789
19	3.263	0.925
20	3.114	0.618
21	3.151	0.618
22	3.068	0.671
23	3.126	0.618
24	3.189	0.618
25	3.180	0.618
26	3.084	0.618
27	2.832	1.034
28	3.140	0.765
29	3.106	0.726
30	3.124	0.659
31	2.993	1.298
32	3.143	2.872
33	3.210	2.873
35	3.151	1.658
36	3.213	1.667
38	3.049	0.618
39	3.047	0.643
42	3.171	0.630
43	2.982	0.930
44	3.100	1.439
45	3.086	0.618
46	3.091	0.671
48	3.011	0.659
49	3.081	0.618
50	3.086	1.034
51	2.971	2.872
52	2.977	2.872
53	3.066	0.618
54	3.214	2.871
55	3.101	0.618
57	3.017	2.025
58	3.106	0.618
59	3.131	0.618
60	3.083	0.690
61	3.158	0.618
62	3.144	0.618
63	3.013	0.642
64	3.094	0.618
65	3.132	0.618
66	3.062	0.618
67	3.082	0.618
68	3.089	0.618
69	3.073	0.618
70	3.193	0.642
71	3.076	0.618
72	3.036	0.618
73	3.082	0.618
74	3.216	0.642
75	3.025	0.687
76	3.134	0.618
77	3.022	0.853
78	3.087	0.630
79	3.089	0.618
80	3.110	0.618
81	3.047	0.670
82	2.983	0.646
83	3.067	0.618
84	3.189	1.096
85	3.051	0.849
86	3.207	1.447
87	3.207	0.742
88	3.150	2.035
89	3.158	2.855
90	3.122	1.097
91	3.050	0.929
92	3.068	0.889
93	3.066	1.029
94	3.160	0.742
95	3.071	0.618
96	3.052	0.817
97	3.090	1.181
98	3.026	0.743
99	3.010	0.742
100	3.116	0.686
102	3.036	0.789
103	3.095	0.930
104	3.185	1.034
105	2.987	0.817
106	3.101	0.765
107	3.024	0.618
108	3.059	0.618
109	3.244	1.658
110	3.080	0.790
111	3.143	1.034
112	3.166	0.972
113	3.114	0.742
114	3.109	1.298
115	2.986	0.707
116	2.924	2.025
117	3.173	1.097
118	3.065	0.769
119	3.066	0.618
120	3.124	2.025
121	3.142	2.036
122	3.097	0.742
123	3.170	2.855
124	3.243	0.848
125	3.176	0.848
127	3.079	1.658
128	3.061	0.646
129	3.101	0.618
130	3.007	1.028
131	3.149	0.618
132	3.184	0.618
133	3.138	0.618

Appendix E

Site	Bhat	Se
134	3.076	0.618
135	3.131	0.618
136	3.080	0.618
137	3.036	0.618
138	3.140	0.618
139	3.086	0.618
140	3.083	0.618
141	3.167	0.618
142	3.178	0.618
143	3.087	0.618
144	3.139	0.618
145	2.991	0.618
146	3.206	0.618
147	2.963	1.102
148	3.081	0.674
149	3.114	1.034
150	3.088	0.618
151	3.067	1.188
152	2.880	1.188
153	2.953	0.630
154	3.015	0.618
155	3.146	0.618
156	3.120	0.671
157	3.081	1.097
159	3.123	2.025
160	3.154	1.447
161	2.966	1.181
162	3.150	2.037
163	3.111	2.871
164	3.051	0.703
166	3.078	2.025
167	3.133	1.029
168	3.066	1.658
169	2.940	1.658
170	2.951	2.872
171	3.150	2.037
172	3.060	0.618
173	3.079	0.889
174	3.147	1.447
175	3.068	1.181
176	3.131	2.873
177	2.953	2.025
178	3.119	1.029
179	2.943	1.439
180	3.016	2.872
181	3.230	2.871
182	3.204	0.978
183	2.852	2.855
184	3.044	1.667
185	3.036	1.291
186	2.822	1.188
188	3.110	1.448
189	2.907	1.666
190	3.095	1.658
192	3.118	2.036
193	3.206	0.618
194	2.963	0.630
195	3.084	0.618
196	2.972	0.690
198	3.100	0.618
199	3.077	0.618
200	2.974	0.930
201	3.091	0.618
202	3.055	0.618
203	3.073	0.618
204	3.150	0.618
205	3.079	0.972
206	3.074	0.618
207	2.974	0.618
208	3.095	1.291
209	3.066	0.656
210	3.052	0.630
211	3.110	1.182
212	3.188	0.817
213	3.097	0.618
214	3.157	0.618
215	3.190	0.618
216	3.176	0.972
217	3.164	0.618
219	3.109	0.884
220	3.143	2.871
221	3.031	1.181
222	3.142	2.037
223	3.111	0.925
224	3.146	2.872
225	3.108	2.025
226	3.147	1.188
227	3.039	2.871
228	3.188	2.025
229	3.011	1.666
230	3.080	1.182
232	3.117	1.658
233	3.190	1.658
234	3.103	2.872
235	3.218	1.291
236	3.025	0.848
237	3.137	1.029
238	3.054	0.972
239	3.081	2.871
240	3.115	2.872
241	3.020	2.855
242	3.021	0.618
243	3.098	1.440
244	3.047	2.025
245	3.100	0.972
247	3.114	1.658
248	3.103	2.872
249	3.029	1.298
250	3.110	0.618
251	3.131	2.025
252	3.099	2.036
253	3.088	1.181
254	3.097	0.790
255	3.072	1.029
256	2.978	2.855
257	3.117	1.097
258	3.097	1.097
259	3.086	2.025
260	3.087	0.690
261	3.123	1.182
262	3.110	2.872
263	3.078	1.439
264	3.089	0.849
265	3.151	1.440
268	3.120	0.618
269	3.159	0.618
270	3.170	0.618
271	3.122	0.618
272	3.087	0.618
273	3.084	0.618
274	2.972	0.618
275	3.070	0.630
276	3.137	0.618
277	3.146	0.618
278	3.112	0.978
279	3.034	1.182
280	3.131	0.618
281	3.049	0.618
282	3.090	0.618
283	3.153	0.671
284	3.160	0.618
285	3.132	1.291
286	3.087	2.855
287	3.116	0.707

Appendix E

Site	Bhat	Se
288	3.205	2.037
289	3.173	0.790
290	3.063	2.037
291	3.097	1.188
292	3.068	0.765
293	3.150	0.977
294	3.108	1.029
295	3.045	1.658
296	2.988	1.034
297	3.280	1.181
298	3.064	1.188
300	3.075	1.188
301	3.095	2.855
302	3.074	1.291
304	3.084	0.972
307	3.088	1.034
308	2.989	1.668
309	3.086	1.298
310	3.146	2.855
311	3.108	2.025
313	3.032	1.667
314	3.157	2.855
315	3.160	2.873
316	3.104	1.447
317	3.135	1.658
320	3.129	1.447
321	3.211	2.855

Period	Bhat	Se
2	-0.019	0.296
3	0.028	0.308
4	0.024	0.307
5	0.004	0.310
6	-0.016	0.314
7	0.036	0.313
8	0.045	0.311
9	0.026	0.313
10	-0.020	0.313
11	0.027	0.317
12	0.044	0.317
13	0.040	0.319
14	0.022	0.318
15	0.067	0.318
16	0.091	0.318
17	0.088	0.314
18	0.042	0.310
19	0.105	0.309
20	0.121	0.308
21	0.105	0.304
22	0.076	0.301
23	0.139	0.302
24	0.148	0.301

Notes and Source:

1. Data from reg9398.xls in USPS-LR-I-107.
2. Parameters estimated using Ordinary Least Squares.

Appendix F

Labor Demand Estimates for Letters

Variable	Coefficient	Standard Error
TPH	2.001	0.340
TPH2	-0.168	0.009
MAN	-0.066	0.245
MAN2	0.035	0.007
TTREND	-0.114	0.020
TTREND2	0.000	0.000
DPT	-0.258	0.456
DPT2	0.056	0.022
QICAP	-0.163	0.253
QICAP2	0.004	0.006
WAGE	0.769	1.170
WAGE2	0.002	0.226
LNT_M	-0.045	0.012
LNT_TR	0.001	0.001
LNT_D	0.097	0.020
LNT_CAP	0.157	0.013
LNT_W	-0.291	0.097
LNM_TR	0.000	0.001
LNM_D	-0.002	0.016
LNM_C	0.032	0.010
LNM_W	0.158	0.072
TR_D	0.010	0.001
TR_C	-0.005	0.001
TR_W	0.008	0.006
LND_C	-0.164	0.018
LND_W	0.048	0.110
LNC_W	0.118	0.073
QTR2	0.052	0.003
QTR3	-0.004	0.003
QTR4	-0.029	0.003
TPHLAG1	-0.192	0.091
TPHLAG2	0.068	0.088
TPHLAG3	-0.207	0.085
TPHLAG4	-0.399	0.071
TPHL12	0.009	0.004
TPHL22	0.000	0.004
TPHL32	0.012	0.004
TPHL42	0.019	0.003
Adj R2	0.997	
Estimated Rho	0.650	
Sample Size	4807	
Volume Variability	0.663	0.023

Notes and Sources:

1. Data from reg9398.xls in USPS-LR-I-107.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation.

Appendix F

Labor Demand Estimates for Flats

Variable	Coefficient	Standard Error
TPH	2.254	0.314
TPH2	-0.095	0.010
MAN	-0.349	0.184
MAN2	0.010	0.004
TTREND	-0.012	0.018
TTREND2	0.001	0.000
DPT	0.487	0.383
DPT2	0.006	0.019
QICAP	-0.272	0.236
QICAP2	0.017	0.006
WAGE	-0.740	1.128
WAGE2	0.120	0.203
LNT_M	0.047	0.010
LNT_TR	0.001	0.001
LNT_D	0.026	0.017
LNT_CAP	0.011	0.012
LNT_W	-0.105	0.083
LNM_TR	0.001	0.001
LNM_D	0.008	0.014
LNM_C	-0.005	0.010
LNM_W	-0.049	0.048
TR_D	0.004	0.001
TR_C	-0.002	0.001
TR_W	-0.010	0.005
LND_C	-0.044	0.018
LND_W	-0.041	0.085
LNC_W	0.101	0.066
QTR2	-0.012	0.004
QTR3	-0.018	0.003
QTR4	-0.037	0.004
TPHLAG1	0.182	0.101
TPHLAG2	-0.717	0.107
TPHLAG3	-0.157	0.097
TPHLAG4	-0.621	0.077
TPHL12	-0.006	0.005
TPHL22	0.043	0.006
TPHL32	0.011	0.005
TPHL42	0.036	0.004
Adj R2	0.996	
Estimated Rho	0.615	
Sample Size	4774	
Volume Variability	0.857	0.022

Notes and Sources:

1. Data from reg9398.xls in USPS-LR-I-107.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation.

Appendix F

Labor Demand Estimates for Parcels

Variable	Coefficient	Standard Error
TPH	0.052	0.338
TPH2	0.024	0.006
TTREND	-0.100	0.060
TTREND2	0.001	0.000
DPT	-0.657	1.093
DPT2	0.013	0.060
QICAP	2.483	0.751
QICAP2	0.015	0.026
WAGE	-5.313	3.396
WAGE2	0.952	0.570
LNT_TR	-0.002	0.001
LNT_D	-0.023	0.024
LNT_CAP	0.004	0.021
LNT_W	0.141	0.085
TR_D	0.005	0.004
TR_C	0.000	0.003
TR_W	0.006	0.017
LND_C	-0.064	0.062
LND_W	0.484	0.228
LNC_W	-0.618	0.187
QTR2	0.000	0.010
QTR3	-0.045	0.010
QTR4	-0.045	0.009
TPHLAG1	-0.073	0.066
TPHLAG2	-0.008	0.065
TPHLAG3	0.022	0.063
TPHLAG4	0.134	0.060
TPHL12	0.012	0.005
TPHL22	0.004	0.005
TPHL32	-0.001	0.005
TPHL42	-0.010	0.005
Adj R2	0.959	
Estimated Rho	0.589	
Sample Size	3651	
Volume Variability	0.750	0.034

Notes and Sources:

1. Data from reg9398.xls in USPS-LR-I-107.
2. Parameters estimated using FGLS, panel fixed effects estimation, allowing for AR(1) serial correlation.

IOCS Observations: Transition Matrix - from MODS to Classes

	BCS	OCR	FSM	LSM	SPBS	Manual Flats	Manual Letters	Manual Parcels	Priority
First Class	0.7765	0.8435	0.5079	0.9129	0.2227	0.4200	0.7872	0.1996	0.0455
Priority	0.0005	0.0011	0.0186	0.0028	0.2377	0.0243	0.0040	0.2816	0.9082
Express	0.0000	0.0000	0.0001	0.0000	0.0014	0.0005	0.0009	0.0067	0.0079
Mailgram	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
Periodicals	0.0011	0.0005	0.0895	0.0000	0.1023	0.1950	0.0096	0.0377	0.0043
Standard A	0.2195	0.1522	0.3698	0.0761	0.3834	0.3436	0.1877	0.1818	0.0065
Standard B	0.0000	0.0000	0.0078	0.0000	0.0353	0.0107	0.0010	0.2705	0.0072
USPS	0.0024	0.0027	0.0057	0.0083	0.0113	0.0055	0.0089	0.0177	0.0202
Free Mail	0.0001	0.0000	0.0006	0.0000	0.0059	0.0003	0.0006	0.0044	0.0000

Source: 1998 IOCS data in UPS-Sellick-WP2.

Appendix H

MODS Labor Hours Used to Aggregate Mail Volumes Constructed Using IOCS Transition Matrix and 1998 MODS Workhours

First Class	107,089,718
Priority	10,921,907
Express	146,857
Periodicals	7,891,001
Standard A	42,002,705
Standard B	1,493,194

Source: 1998 IOCS Data in UPS-Sellick-WP2 and reg9398.xls in USPS-LR-I-107.

CHAIRMAN GLEIMAN: Mr. Neels, have you had an opportunity to examine the packet of designated written cross examination that was made available earlier this morning?

THE WITNESS: I have.

CHAIRMAN GLEIMAN: And if those questions were asked of you today, would your answers be the same as those you previously provided in writing?

THE WITNESS: They would.

CHAIRMAN GLEIMAN: No changes, additions or corrections?

THE WITNESS: No, sir.

CHAIRMAN GLEIMAN: That being the case, counsel, if you could please provide two copies of the designated written cross examination of Witness Neels to the reporter, I will direct that that material be received into evidence and transcribed into the record also.

[Designated Written Cross-Examination of Kevin Neels, UPS-T-1, was received into evidence and transcribed into the record.]

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, DC 20268-0001

Postal Rate and Fee Changes, 2000 Docket No. R2000-1

DESIGNATION OF WRITTEN CROSS-EXAMINATION
OF UNITED PARCEL SERVICE
WITNESS KEVIN NEELS
(UPS-T-1)

Party	Interrogatories
Association of American Publishers	AAP/UPS-T1-1, 4-5
United States Postal Service	AAP/UPS-T1-1-5 USPS/UPS-T1-1-50

Respectfully submitted,

Cyril J. Pittack
Acting Secretary

INTERROGATORY RESPONSES OF
UNITED PARCEL SERVICE
WITNESS KEVIN NEELS (T-1)
DESIGNATED AS WRITTEN CROSS-EXAMINATION

Interrogatory	Designating Parties
AAP/UPS-T1-1	AAP, USPS
AAP/UPS-T1-2	USPS
AAP/UPS-T1-3	USPS
AAP/UPS-T1-4	AAP, USPS
AAP/UPS-T1-5	AAP, USPS
USPS/UPS-T1-1	USPS
USPS/UPS-T1-2	USPS
USPS/UPS-T1-3	USPS
USPS/UPS-T1-4	USPS
USPS/UPS-T1-5	USPS
USPS/UPS-T1-6	USPS
USPS/UPS-T1-7	USPS
USPS/UPS-T1-8	USPS
USPS/UPS-T1-9	USPS
USPS/UPS-T1-10	USPS
USPS/UPS-T1-11	USPS
USPS/UPS-T1-12	USPS
USPS/UPS-T1-13	USPS
USPS/UPS-T1-14	USPS
USPS/UPS-T1-15	USPS
USPS/UPS-T1-16	USPS
USPS/UPS-T1-17	USPS
USPS/UPS-T1-18	USPS
USPS/UPS-T1-19	USPS
USPS/UPS-T1-20	USPS
USPS/UPS-T1-21	USPS
USPS/UPS-T1-22	USPS
USPS/UPS-T1-23	USPS
USPS/UPS-T1-24	USPS
USPS/UPS-T1-25	USPS
USPS/UPS-T1-26	USPS
USPS/UPS-T1-27	USPS
USPS/UPS-T1-28	USPS

USPS/UPS-T1-29	USPS
USPS/UPS-T1-30	USPS
USPS/UPS-T1-31	USPS
USPS/UPS-T1-32	USPS
USPS/UPS-T1-33	USPS
USPS/UPS-T1-34	USPS
USPS/UPS-T1-35	USPS
USPS/UPS-T1-36	USPS
USPS/UPS-T1-37	USPS
USPS/UPS-T1-38	USPS
USPS/UPS-T1-39	USPS
USPS/UPS-T1-40	USPS
USPS/UPS-T1-41	USPS
USPS/UPS-T1-42	USPS
USPS/UPS-T1-43	USPS
USPS/UPS-T1-44	USPS
USPS/UPS-T1-45	USPS
USPS/UPS-T1-46	USPS
USPS/UPS-T1-47	USPS
USPS/UPS-T1-48	USPS
USPS/UPS-T1-49	USPS
USPS/UPS-T1-50	USPS

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
TO INTERROGATORY OF THE ASSOCIATION OF AMERICAN PUBLISHERS

AAP/UPS-T1-1. On page 11 of your testimony at lines 20-22, you state that "[a] cost minimizing provider of mail processing services can be expected to alter systematically its procedures for processing mail in response to changes in mail volumes." With respect to this statement:

(a) Please state whether it is your opinion that the Postal Service is in fact a "cost minimizing provider of mail processing services." If you hold the opinion that the Postal Service is a cost minimizing provider of mail processing services, please provide all studies or other evidence you relied on in support of this opinion.

(b) Please state whether, for purposes of your testimony, you have assumed that the Postal Service is a "cost minimizing provider of mail processing services." If you have assumed that the Postal Service is a cost minimizing provider of mail processing services, please provide all studies or other evidence you relied on in support of this assumption.

Response to AAP/UPS-T1-1.

(a) It was not necessary, for the purposes of my testimony, to form an opinion about whether or not the Postal Service is a cost minimizing producer of mail processing services.

(b) The analysis presented in my testimony does not rely on any assumptions about whether or not the Postal Service is a cost minimizing provider of mail processing services.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
TO INTERROGATORY OF THE ASSOCIATION OF AMERICAN PUBLISHERS

AAP/UPS-T1-2. On page 30 of your testimony (lines 8-9), you state that "[b]ecause the number of subclasses is very large, direct estimation of these cost elasticities is often not feasible." With respect to this statement, please provide an explanation as to why you believe that direct estimation of these cost elasticities is not feasible based on the number of subclasses. Please explain whether it is your opinion, or the opinion of the Postal Service, that the direct estimation of the cost elasticities is not possible.

Response to AAP/UPS-T1-2.

Subclass-level estimation is not feasible because of the paucity of subclass-level data. As far as I am aware, the only available information at the subclass level includes RPW volumes and data collected for the costing distribution, such as the IOCS and TRACS data. These limited data do not provide the degrees of freedom necessary to estimate model parameters econometrically.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
TO INTERROGATORY OF THE ASSOCIATION OF AMERICAN PUBLISHERS

AAP/UPS-T1-3. On page 33 of your testimony (lines 7-11) you indicate that you have conducted an empirical investigation of the relationship between the volume of mail processed at a plant and the number of piece handlings at that plant. Please provide all results and supporting documentation pertaining to that investigation.

Response to AAP/UPS-T1-3.

I have conducted an empirical investigation of the relationship between the volume of mail processed at a plant and the number of piece handlings at that plant. Pages 33-38 and 60-63 of my testimony, UPS-T-1, contain a description of the investigation, the results, and a discussion of the implications of the findings for Dr. Bozzo's estimated variabilities. All supporting documentation, including programs, source data, and details about methodology used in this investigation, are included in UPS-Neels-WP-1. See the table, "Overview of Analysis Programs," located in the subdirectory of the workpapers entitled, "Appendix – Analysis Program Files," for a guide to the appropriate documentation.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
TO INTERROGATORY OF THE ASSOCIATION OF AMERICAN PUBLISHERS

AAP/UPS-T1-4. On page 39 of your testimony (line 9) you state that "[t]he Postal Service has pursued automation as a cost saving strategy." With respect to this statement, please provide any analysis that you performed or that you relied upon which demonstrates that the Postal Service's pursuit of automation has in fact resulted in actual cost savings.

Response to AAP/UPS-T1-4.

I have not performed my own analysis to determine the effects of automation on Postal Service costs.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
TO INTERROGATORY OF THE ASSOCIATION OF AMERICAN PUBLISHERS

AAP/UPS-T1-5. On page 40 of your testimony (lines 3-4) you describe a calculation of the elasticity of postal labor costs with respect to "piece handlings." Please explain why, in this analysis, you have studied labor costs as a function of piece handlings. Is it your testimony that the *marg*inal cost of postal labor *sh*ould or should not be measured as a function of piece handlings?

Response to AAP/UPS-T1-5.

On page 40 of my testimony, I study the calculation of the elasticity of postal labor costs with respect to "piece handlings" for the sole purpose of investigating the properties of Dr. Bozzo's variability estimates. This investigation, which is described on pages 39-46 of my testimony, UPS-T-1, uncovers the unreasonable implications of Dr. Bozzo's results.

It is my testimony that labor costs should *not* be measured as a function of piece handlings. See pages 30-34 of UPS-T-1.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS TO INTERROGATORY OF THE UNITED STATES POSTAL SERVICE

USPS/UPS-T1-1. Please refer to the curriculum vitae provided as Appendix A to your testimony, UPS-T-1. For each listed item following the "Testimony" heading, other than the Docket No. R97-1 item, please indicate whether your testimony pertained, in whole or in part, to an econometric analysis of panel data. If so, please provide a copy of the written testimony.

Response to USPS/UPS-T1-1. My testimony in the following matters pertained in whole or in part to an econometric analysis of panel data:

1. Before the U.S. District Court, District of Maryland, Testimony in the Matter of Borman Motor Company Limited Liability Co., et al. vs. American Honda Motor Company Inc., et al., Civil Action No. MDL-1069, August 1998;
2. Before the U.S. District Court, District of Kansas, Testimony in the Matter of Timothy Mellon vs. The Cessna Aircraft Company, Civil Action No. 96-1454-JTM, Expert Report, November 1997.

Copies of the above are being filed as library reference UPS-LR-1.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS TO INTERROGATORY OF THE UNITED STATES POSTAL SERVICE

USPS/UPS-T1-2. Please refer to your testimony, UPS-T-1, at page 32, lines 9-11. You state, "It would be even simpler for the Postal Service to dispense with the whole cost driver/distribution key approach and retain the traditional finding that mail processing labor costs are 100 percent volume-variable." See also witness Sellick's testimony, UPS-T-2, at page 2, lines 15-18, where Mr. Sellick states that he provides "a recalculation of base year Cost Segment 3 costs . . . using 100 percent mail processing labor cost variability as proposed by UPS witness Neels (UPS-T-1)."

a. Confirm that Mr. Sellick's calculations for cost segment 3.1 (mail processing labor) are consistent with your testimony, UPS-T-1. If you do not confirm, please explain fully.

b. Do you contend that the subclass "costs" for cost segment 3.1 computed by Mr. Sellick for UPS-T-2, divided by the corresponding RPW volume, have the economic interpretation of marginal cost? Please provide the economic interpretation you believe to be correct if your answer is negative in whole or in part

c. Please provide the precise economic interpretation(s) of the "100 percent mail processing labor cost variabilities" employed by Mr. Sellick for cost segment 3.1 That is, if you contend the 100 percent variabilities represent the elasticity of "X" with respect to "Y," provide a precise definition of "X" and "Y."

d. Please provide the precise economic interpretation(s) of the IOCS-based distribution key shares used by Mr. Sellick to compute mail processing "costs" by cost

**ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
TO INTERROGATORY OF THE UNITED STATES POSTAL SERVICE**

pool and subclass. Reconcile your answer, as necessary, with your responses to parts (b) and (c) of this interrogatory.

Response to USPS/UPS-T1-2.

(a) Confirmed. On pages 60-70 of my testimony, I present alternative calculations of the volume variability of mail processing labor costs. Almost all of these calculations yield variabilities equal to or in excess of 100 percent. The only noteworthy exception occurs in Tables 9 and 10 in connection with the Priority Mail MODS pool. As I note in my testimony (page 27, line 1-page 28, line 12), the Priority Mail data are subject to measurement error that appears to result in downward bias in the estimated volume variability. As I also state in my testimony (page 71, line 19-page 72, line 21), I am skeptical of the ability of MODS-level analyses to capture all of the effects of interactions between processing activities for purposes of computing volume variability. For these reasons, I am persuaded by the overall weight of the evidence, especially the results of the aggregate analysis reported on pages 63-70 of my testimony, that a volume variability of 100 percent is appropriate.

(b) I assume that you intend to ask whether I contend that the subclass costs for cost segment 3.1 computed by Mr. Sellick in UPS-T-2, divided by the corresponding RPW volume, represent marginal mail proceessing labor costs. Dividing Mr. Sellick's subclass costs by the corresponding RPW volumes does give the best approximations of the partial derivatives of mail processing labor costs with respect to subclass

volumes that are available in this record.

(c) "X" equals mail processing labor cost for a specific MODS pool. "Y" represents the number of pieces of mail of a specific subclass delivered by the Postal Service.

(d) Mr. Sellick's IOCS-based distribution key shares represent the shares of costs, by MODS pool, accounted for by the various mail subclasses.

**ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
TO INTERROGATORY OF THE UNITED STATES POSTAL SERVICE**

USPS/UPS-T1-3. Please refer to your testimony, UPS-T-1, at pages 30-36. Please also refer to USPS-T-15 at pages 52-53, especially lines 17-18 of page 52 and lines 7-8 of page 53.

a. Please confirm that you conducted an analysis of the relationship between TPF (or TPH, as appropriate) and FHP as a test of the "proportionality assumption" discussed by Dr. Bozzo. If you do not confirm, please explain the purpose of the analysis you present at pages 34-36 of your testimony.

b. Does Dr. Bozzo describe the "proportionality" assumption as pertaining to the relationship between piece handlings and subclass RPW volumes, or to the relationship between piece handlings and FHP volumes? Please explain the basis for your answer.

c. Please provide a detailed statement of your understanding of the distinction between RPW volume and FHP volume.

d. Have you conducted any analysis of the relationship between FHP volumes and RPW volumes? If so, please provide a detailed description of the methods and results of your analysis.

Response to USPS/UPS-T1-3.

(a) Confirmed.

(b) Dr. Bozzo describes the "proportionality" assumption as pertaining to the relationship between piece handlings and subclass RPW volumes, as explained on page 52, lines 17-18 of his testimony.

**ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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(c) I understand that at a given point in time, mail processing and transportation plans provide a specific routing for each potential origin-destination combination. A particular piece of mail traveling from a specific origin to a specific destination may pass through multiple mail processing plants as it makes its way along this routing. This arrangement is described in the stylized example presented in USPS-T-16, pages 15-16. A single piece of mail, representing a unit increase in RPW volume, will generate a unit increase in FHP volume at each of the processing plants through which it passes and in which it undergoes sortation. The relationship between incremental RPW volume and incremental FHP volume will depend upon routing, and, for a given routing, the two will generally vary in direct proportion.

I understand that exceptions to direct proportionality between RPW volume and FHP volume may sometimes occur. A change in the geographic distribution of mail is likely to alter the relationship. Reconfiguration of the network involving the opening or closing of plants is also likely to alter the relationship. Sortation errors and misrouting of mail may increase the number of plants a particular piece of mail passes through, and thus changes in the frequency of these errors may also alter the relationship between RPW volume and FHP volume. Changes in worksharing can alter the relationship beween RPW volume and FHP.

Any departures from direct proportionality between FHP volume and RPW volume would have an equal or greater effect on the relationship between TPF and RPW volume.

**ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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(d) No.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-4. Please refer to your testimony, UPS-T-1, at page 62. You indicate in note 1 to the table that "[v]olume variability is defined as:

$$\frac{\partial \ln C}{\partial \ln FHP} = \frac{\partial \ln C}{\partial \ln TPH} \cdot \frac{\partial \ln TPH}{\partial \ln FHP}."$$

a. Does your equation omit a subscript (say, "i") indicating cost pool?

b. If your response to part (a) is affirmative, confirm that the equation from note 1 may be rewritten as:

$$\frac{\partial \ln C_i}{\partial \ln FHP_i} = \frac{\partial \ln C_i}{\partial \ln TPH_i} \cdot \frac{\partial \ln TPH_i}{\partial \ln FHP_i}.$$ If not, please provide a version of the equation that correctly specifies the omitted subscripts.

Response to USPS/UPS-T1-4.

(a) Yes. I was speaking in general terms, not necessarily with respect to an analysis based on cost pools.

(b) Table 9 on page 62 presents the results of two calculations. Results presented in the second column from the right reflect TPH/FHP elasticities calculated at the MODS pool level. For this calculation, the modification of the equation from note 1 presented in part (b) of this question is correct. Results presented in the rightmost column, however, reflect TPH/FHP elasticities calculated at the shapes level. For that calculation, the appropriate modification of the note 1 equation would be:

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$\frac{\partial \ln C_i}{\partial \ln FHP_i} = \frac{\partial \ln C_i}{\partial \ln TPH_i} \cdot \frac{\partial \ln TPH_j}{\partial \ln FHP_j}$, where the subscript *i* refers to MODS pool and the subscript *j* refers to the shape grouping of which MODS pool *i* is a part.

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USPS/UPS-T1-5. Please refer to your testimony, UPS-T-1, at page 74, lines 20-21. You state that "Postal Service witnesses have argued that increases in cost associated with growth in the number of addresses have no relevance to ratemaking." Please refer further to your testimony at page 75, lines 14-15, where you indicate that growth in the number of delivery points is "costly to accommodate."

a. Please provide detailed citations to the Postal Service testimony you reference in the statement from page 74 quoted above. If you can find none, what is the basis for the statement?

b. Do you believe that there are "increases in cost associated with growth in the number of addresses" for mail processing? If not, explain in detail the meaning of the statement from page 75 quoted above.

c. If there are "increases in cost associated with growth in the number of addresses," how are those costs causally attributable to a subclass of mail as volume-variable (or marginal cost)? Provide a detailed justification of your response.

d. If there are "increases in cost associated with growth in the number of addresses," how are those costs causally attributable to a subclass of mail as incremental cost? Provide a detailed justification of your response, including a reconciliation of your response with the discussion of incremental cost provided by witness Sappington in UPS-T-6.

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Response to USPS/UPS-T1-5.

(a) See USPS-T-15, pages 47-48, in which Dr. Bozzo discusses the distinction between network characteristics and volume. He states on page 47, lines 19-20, that "Volume and network characteristics interact in complicated ways, but volume does not cause network characteristics." Later on page 48, lines 16-18, after a lengthy discussion of the effects of network characteristics on costs, he concludes that "Such systematic productivity differences are clearly not driven by volume, but rather by non-volume network characteristics."

See also USPS-T-15, page 125, lines 13-16, in which Dr. Bozzo states that "The significance of the distinction between the volume and the network effect for postal costing is that *the deliveries elasticities, the contributions of the network to the costs of processing operations, are not causally attributable to the subclasses of mail."* (emphasis in the original).

See also USPS-T-16, page 5, lines 21-25, in which Mr. Degen states that "I identify some of the local cost-causing characteristics that will not change in response to a small sustained increase in volume. Some of these characteristics appear to be volume-related but are, in fact, driven by non-volume factors, particularly those pertaining to the delivery network served by each plant."

(b) Yes.

(c) As I discuss on page 75, lines 7-12, a portion of the volume growth experienced by the Postal Service will result from the creation of new households and

new businesses. These new households and businesses represent new delivery points. Associated with each delivery point will be a characteristic mix of mail. Accommodating the volumes associated with such new delivery points requires modification of the processing plan for each mailstream experiencing such growth in volume. Costs associated with these modifications are causally related to the volume growth caused by the creation of new households and businesses.

(d) See my response to part (c), above.

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USPS/UPS-T1-6. Refer to your analysis of the relationship between FHP and TPF (or TPH, as appropriate).

a. Confirm that a piece of mail may receive subsequent handlings in cost pools other than the cost pool in which it is recorded for FHP, e.g., pieces without a mailer applied barcode that are initially processed on OCR equipment and receive subsequent handlings on BCS equipment. Explain fully any answer other than an unconditional confirmation.

b. Does your analysis of the relationship between FHP and TPF account for the fact that the FHP count for a piece and subsequent TPF volume may appear in different cost pools? If so, please explain how.

Response to USPS/UPS-T1-6.

(a) Confirmed.

(b) Yes. My MODS pool level analysis of the relationship between FHP and TPF does not account directly for the fact that a particular piece of mail may be processed in multiple MODS pools. This is a weakness inherent in MODS-level analysis. It was for this reason that I also conducted analyses of the relationship between FHP and TPF at the shapes level, which, by aggregating cost pools by shape, reflects the fact that the FHP count for a piece and subsequent TPF volume may appear in different cost pools. See UPS-T-1, pages 37-38.

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USPS/UPS-T1-7. Please refer to your testimony at page 62 (Table 9).

(a) Please provide copies of all exhibits referenced in the notes to Table 9. If the referenced material is provided elsewhere in your testimony or workpapers, provide correct citations.

(b) Note 3 appears to refer erroneously to "Appendix 5." Please provide the correct reference.

(c) Please provide estimated standard errors for all quantities reported in Table 9, other than those obtained directly from Dr. Bozzo's testimony.

(d) Please describe fully the method used to compute the standard errors provided in response to part (c). If the method is described elsewhere in your testimony or workpapers, provide appropriate citations.

Response to USPS/UPS-T1-7.

(a) In note 3 on page 62, the reference to "Exhibit 9" should be replaced with "Table 8." In that same note, the reference to "Appendix 5" should be replaced with "Appendices E and F." In note 4 on page 62, the reference to "Exhibit 10" should be replaced with "Table 6." In note 5 on page 62, the reference to "Exhibit 11" should be replaced with "Table 7."

(b) See my response to USPS/UPS-T1-7(a), above.

(c) See the attached Table Prepared in Response to USPS/UPS-T1-7(c). In order to comply most efficiently with this request, I have recomputed volume variabilities using the procedures described in my response to (d), below. Because of the different

samples used, these variability estimates differ slightly from those presented in my testimony, but lead to identical conclusions. Although I have recomputed variabilities in a way that permits efficient computation of standard errors, I stand by my original testimony in this area.

(d) The corrections to Dr. Bozzo's volume variability ($a \equiv \frac{\partial \ln(Cost_i)}{\partial \ln(FHP_i)}$) for MODS group *i* are computed in two ways that correspond to the two different estimates presented in Table 9:

(1) The variability a_1 is defined as the product of the MODS variability of costs with respect to TPH/F ($b \equiv \frac{\partial \ln(Cost_i)}{\partial \ln(TPH/F_i)}$) and the MODS variability of TPH/F with respect to FHP ($d_1 \equiv \frac{\partial \ln(TPH/F_i)}{\partial \ln(FHP_i)}$).

(2) The variability a_2 is defined as the product of the MODS variability of costs with respect to TPH/F (*b*) and the shapes variability of TPH/F with respect to FHP ($d_2 \equiv \frac{\partial \ln(TPH/F_j)}{\partial \ln(FHP_j)}$), where *j* indexes the shape processed by MODS group *i*.

Thus, these variabilities can be expressed as:

(1') $a_1 = b \times d_1$, and

(2') $a_2 = b \times d_2$.

Let $\hat{b}$, $\hat{d}_1$, and $\hat{d}_2$ denote estimators for *b*, d_1, and d_2, respectively, with associated variances $V(\hat{b})$, $V(\hat{d}_1)$, and $V(\hat{d}_2)$. Estimates for *b*, d_1, and d_2 are presented in Table 9 of at page 62 of UPS-T-1. The associated standard errors for $\hat{b}$ (for all but

Parcels) are presented in UPS-Neels-WP-1 (UPS-T-1), in folder "Appendix – Analysis Program Files", subfolder "Replication.prg", file "Verifying Replication of Bozzo.xls" (electronic version), and in Appendix: Analysis Programs, B. Program and Log Files, "Verifying the Replication of Bozzo's Analysis Sample and Variability Estimates" (hardcopy version). The standard errors for $\hat{d}_1, \hat{d}_2$, and $\hat{b}$ for Parcels are presented in UPS-T-1, Tables 6 (page 36), 7 (page 38), and 8 (page 60), respectively.

Estimators for a_1 and a_2 are given by:

(1") $\hat{a}_1 = \hat{b} \times \hat{d}_1$, and

(2") $\hat{a}_2 = \hat{b} \times \hat{d}_2$

The associated variances are generally functions of $V(\hat{b})$, $V(\hat{d}_1)$, $V(\hat{d}_2)$, the covariance of $\hat{b}$ and $\hat{d}_1$, and the covariance of $\hat{b}$ and $\hat{d}_2$, denoted as $Cov(\hat{b}, \hat{d}_1)$ and $Cov(\hat{b}, \hat{d}_2)$. If the two parameters b and d_k, where k indexes the correction method, are estimated using the same analysis sample, $Cov(\hat{b}, \hat{d}_k) \neq 0$. Alternatively, if the two parameters are estimated using orthogonal or uncorrelated analysis samples, then $Cov(\hat{b}, \hat{d}_k) = 0$.

The results contained in UPS-T-1 present estimates of b and d_k that are constructed using essentially the same analysis samples. Thus, calculation of standard errors for $\hat{a}_1$ and $\hat{a}_2$ requires either: (1) joint estimation of b and d_k, which would then

permit construction of an estimate of Cov($\hat{b}$, $\hat{d}_k$), or (2) re-estimation of b and d_k using orthogonal analysis samples, which would render Cov($\hat{b}$, $\hat{d}_k$) = 0.

In order to avoid introduction of new joint estimation methods, I employ the latter approach. Using a random number generator that draws from the uniform distribution, I randomly partition the 321 facilities in the analysis sample into two unique sets of facilities. The data in the first set are referred to as Sample 1, and the data in the second set are referred to as Sample 2. Samples 1 and 2 are orthogonal by construction, under the maintained assumptions of USPS-T-15. I have included the data and programs used in these calculations along with information on how the sample was partitioned in library reference UPS-LR-2.

I estimate the parameter b for each of the groups in the table using Sample 1. Parameters d_k are estimated using Sample 2. These estimates along with their standard errors are presented in columns (2)-(4) of the attached Table Prepared in Response to USPS/UPS-T1-7(c). I have included the programs used to generate these results in library reference UPS-LR-2.

Estimates for a_1 and a_2 are presented in columns (5) and (6) of the attached Table Prepared in Response to USPS/UPS-T1-7(c). I calculate the variance of $\hat{a}_1$ and $\hat{a}_2$ using a Taylor series approximation around the product of the estimated values of b and d. The associated standard errors, presented in parentheses below the estimates, are thus computed as:

$$se(\hat{a}_k) = ((\hat{d}_k \times se(\hat{b}))^2 + ((\hat{d}_k \times se(\hat{b}))^2)^{\frac{1}{2}}$$

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The T-test statistics presented in columns (7) and (8) of the attached Table Prepared in Response to USPS/UPS-T1-7(c) show that using the MODS-level adjustment, the resulting volume variabilities are statistically different from Dr. Bozzo's variabilities in column (2) in all but three instances. Using the shapes-level adjustment, the resulting variabilities are statistically different in all but one instance.

Table Prepared in Response to USPS/UPS-T1-7(c)

MODS-Level Estimates of the Elasticity of Labor Costs with Respect to First Handled Pieces

Group	Bozzo's Variability of Costs w.r.t. TPH	Re-estimation of Bozzo's Variability of Costs w.r.t. TPH using Sample 1	MODS Level Variability of TPH w.r.t. FHP using Sample 2	Shapes Level Variability of TPH w.r.t. FHP using Sample 2	Volume Variability With MODS Level Correction	Volume Variability With Shapes Level Correction	T-test Statistic for Ho: Volume Variability (col(2)) = TPH/F Variability (col(5))	T-test Statistic for Ho: Volume Variability (col(2)) = TPH/F Variability (col(6))
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OCR	0.751	0.798	1.623	1.632	1.295	1.302	5.264	5.361
std error	(0.038)	(0.054)	(0.044)	(0.041)	(0.094)	(0.094)		
sample size	5088	2683	2405	2236				
LSM	0.955	0.966	1.029	1.632	0.994	1.577	0.559	9.673
std error	(0.021)	(0.030)	(0.041)	(0.041)	(0.050)	(0.063)		
sample size	3894	1959	1882	2236				
BCS	0.895	0.817	1.721	1.632	1.406	1.333	7.685	7.170
std error	(0.030)	(0.039)	(0.045)	(0.041)	(0.077)	(0.072)		
sample size	5390	2773	2617	2236				
Manual Letters	0.735	0.788	1.238	1.632	0.976	1.286	4.322	7.918
std error	(0.024)	(0.033)	(0.019)	(0.041)	(0.043)	(0.063)		
sample size	5499	2816	2685	2236				
FSM	0.817	0.809	1.663	1.344	1.345	1.087	8.473	5.893
std error	(0.026)	(0.033)	(0.039)	(0.020)	(0.063)	(0.047)		
sample size	4357	2295	2057	2272				
Manual Flats	0.772	0.776	1.018	1.344	0.790	1.043	0.323	4.559
std error	(0.027)	(0.042)	(0.008)	(0.020)	(0.043)	(0.059)		
sample size	4879	2567	2312	2272				
Parcels[3]	0.750	0.700	1.613	1.613	1.129	1.129	3.894	3.894
std error	(0.034)	(0.047)	(0.114)	(0.114)	(0.110)	(0.110)		
sample size	3651	1954	1737	1737				
Priority	0.522	0.573	1.015	1.015	0.582	0.582	0.197	0.197
std error	(0.025)	(0.043)	(0.004)	(0.004)	(0.044)	(0.044)		
sample size	3240	1612	1630	1630				

Notes and Sources:

1. Volume variability is defined as :

$$\frac{\partial \ln C}{\partial \ln FHP} = \frac{\partial \ln C}{\partial \ln TPH} \times \frac{\partial \ln TPH}{\partial \ln FHP}$$

2. Bozzo's variabilities from USPS-T-15, pp. 119-120, have been re-estimated using Sample 1 sites.

3. For Parcels, the elasticity of costs with respect to (w.r.t.) TPH was estimated by combining the SPBS and Manual Parcels MODS groups, as described in the text of my report and presented in UPS-T-1, Table 8. These variabilities have been re-estimated using Sample 2 sites.

4. The MODS-level variability of TPH w.r.t. FHP, from Table 6 in UPS-T-1, have been re-estimated using Sample 2 sites.

5. The Shapes-level variability of TPH w.r.t. FHP, from Table 7 in UPS-T-1, have been re-estimated using Sample 2 sites. Letter variability of TPH w.r.t. FHP applied to MODS groups OCR, LSM, BCS, and Manual Letters. Similarly, Flats variabilities applied to Manual Flats and FSM.

6. Because the regression equations used to estimate the volume variability and the variability of TPH w.r.t. FHP rely on different sets of variables, the usable samples for the two sub-sample regressions do not always sum to the full usable sample.

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USPS/UPS-T1-8. Please refer to your testimony on page 62 (Table 9).

(a) Confirm that the number (1.597) reported in the OCR line of Table 9 in the column labeled "MODS Level Variability of TPH w.r.t. FHP" is an estimate of the elasticity of OCR TPH with respect to OCR FHP. If you do not confirm, please provide the interpretation you believe to be correct.

(b) Confirm that the number (2.062) reported in the OCR line of Table 9 in the column labeled "Shapes Level Variability of TPH w.r.t. FHP" is an estimate of the elasticity of total TPH for letter-shape operations with respect to total FHP for letter-shape operations. If you do not confirm, please provide the interpretation you believe to be correct.

(c) Confirm that the numbers reported in the lines of Table 9 other than OCR, in the column labeled "MODS Level Variability of TPH w.r.t. FHP," are estimates of the elasticity of TPH in the specified "MODS Group" with respect to FHP in the specified "MODS Group." If you do not confirm, please provide the interpretation you believe to be correct.

(d) Confirm that the numbers reported in the lines of Table 9 other than OCR, in the column labeled "Shapes Level Variability of TPH w.r.t. FHP," are estimates of the elasticity of total TPH for the shape of mail corresponding to the specified "MODS Group" with respect to total FHP for shape of mail corresponding to the specified "MODS Group." If you do not confirm, please provide the interpretation you believe to be correct.

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Response to USPS/UPS-T1-8.

(a) Confirmed.

(b) Confirmed.

(c) Confirmed.

(d) Confirmed.

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USPS/UPS-T1-9. Please refer to your testimony at page 26, lines 7-9. You state, referring to Dr. Bozzo's response to UPS/USPS-T15-13 (Tr. 15/6387-6388), "For Site #6 in particular, Dr. Bozzo indicates that the gaps in the data series corresponded to periods where the data for the SPBS and Manual Parcels MODS activities were commingled and reported together as data for the SPBS MODS group."

(a) Confirm that the "data series" for site #6 addressed in UPS/USPS-T15-13 are the TPH series for manual parcels and manual Priority Mail operation groups. If you do not confirm, please explain.

(b) Confirm that in response to oral examination by counsel for UPS, Dr. Bozzo indicated that he used the term "commingled" to mean "that site [#6] had handled manual and SPBS parcels together up to a point prior to separating them according to the mail processing technology that was used to sort them" (Tr. 15/6431, lines 2-5).

(c) Where did Dr. Bozzo state, either in the cited response to UPS/USPS-T15-13, or in response to oral examination at Tr. 15/6430-6431, that "data for the SPBS and Manual Parcels MODS activities were commingled and reported together as data for the SPBS MODS group"? If Dr. Bozzo did not make this statement, please so indicate.

Response to USPS/UPS-T1-9.

(a) Confirmed.

(b) Dr. Bozzo's response at Tr. 15/6431, lines 2-5, addressed the following question posed by counsel for UPS:

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> "Does that mean that manual parcels and SPBS parcels were handled together in the same operation, or let me just [ask] you what did you mean by commingled?" (Tr. 15/6430, line 24 - Tr. 15/6431, line 1).

The question as asked refers not to the logging of data, but rather to the handling of parcels. Dr. Bozzo's response appears to address this operational question, and indicates that until the introduction of new technology created separate processing streams, all parcels were handled together in the same operation.

I confirm that the question quotes Tr. 15/6431, lines 2-5, accurately.

(c) In his response to UPS/USPS-T15-13; Dr. Bozzo stated that "the intermittent reporting of manual parcel piece handlings may reflect periods in which manual and SPBS parcels were commingled" (Tr. 15/6387). His response to oral cross-examination by counsel for UPS raises the question of whether he was referring to the commingling of data, or to the commingling of parcels in a single operation. At the time I prepared my Direct Testimony, I interpreted his response to refer to the commingling of data, and I still believe that this is the only interpretation that makes sense.

As Dr. Bozzo himself points out in his response to UPS/USPS-T15-13, during the time from period 294 through period 295 when manual parcel TPH for site #6 are reported as zero, positive manual parcel work hours are reported. The table below, which confirms Dr. Bozzo's response, shows TPH/F and work hours for manual parcels and SPBS for site #6. Based on these data, it appears that site #6 introduced SPBS technology in period 194, after which time it reports positive piece handlings and work

hours for its SPBS operation. From periods 294 through 295 and from 296 through 397, site #6 reports zero piece handlings for manual parcels but positive work hours for manual parcels. The fact that work hours are reported separately for manual parcels and SPBS during these periods clearly indicates that both operations were up and running, and that it is the TPH ***data*** for the two operations that are commingled.

MODS Pieces and Labor Hours for Site # 6				
Quarter	Manual Parcels		SPBS	
	TPH	HRS	TPF	HRS
193	181	3473	0	0
293	181	3820	0	0
393	188	3153	0	0
493	157	3370	0	0
194	138	4316	1014	4894
294	0	3603	1860	14191
394	0	3282	1933	12854
494	0	2721	2068	13423
195	0	3157	3162	16031
295	0	2418	3276	16918
395	20	1788	3039	12513
495	96	1454	3374	9641
196	109	1787	3658	11522
296	0	854	3302	8621
396	0	1047	2971	6894
496	0	1586	2309	7638
197	0	1800	3380	9570
297	0	1162	2699	7894
397	0	950	3159	9369
497	724	307	3114	9278
198	445	16	3491	10228
298	2516	72	2475	6523
398	1600	11	3016	8072
498	1321	0	2627	9581

Parcels entering a processing plant become either manual parcels or SPBS parcels by virtue of their characteristics and how and where they are processed. For

the most part, machinable parcels are processed at BMCs, using primary and secondary parcel sorters and small parcel and bundle sorters (USPS-T-10, pp. 19-20). Loose parcels, parcels in 5-digit sacks, non-machinable outside parcels, and First-Class odd shapes are sorted manually (USPS-T-16, p. 44, lines 7-9); these parcels either are not or cannot be processed in the SPBS operation. In other words, if all parcels were processed together in the SPBS operation, as the TPH data suggests, they would all by definition be SPBS parcels, and it would not make sense to talk of "commingling" manual parcels and SPBS parcels in SPBS operations.

Webster's Revised Unabridged Dictionary defines "commingle" as: "To mingle together; to mix in one mass." Thus, I expected to find the manual parcel and SPBS THP/F data for periods 294 through 295 in site #6 to be reported together "in one mass." These data were clearly not reported as manual parcel TPH/F, since those values appear as zeros in Dr. Bozzo's data set. The other logical place where the commingled data could have appeared – namely, the SPBS TPH/F data series – held positive values. I assumed that this represented the commingled manual parcel and SPBS data, and that still seems to be the most likely situation. However, I cannot exclude the possibility that the numbers shown as SPBS TPH/F for periods 294 through 295 in site #6 actually represent something completely different, and that the commingled parcel TPH/F data appear elsewhere, in some illogical place, as the result of data reporting errors.

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USPS/UPS-T1-10. Please refer to your testimony at page 24, line 15, to page 25, line 2. Also refer to Table 4 on page 25.

(a) Confirm that the data in Table 4 do not reflect the errata to USPS-T-15 filed on January 25, 2000. If you do not confirm, please explain.

(b) Confirm that Table 4, corrected to reflect the errata to USPS-T-15, filed on January 25, 2000, would read as follows:

Table 4
MODS Data Quality

MODS Group	Non-Missing	Threshold	Threshold and Productivity	% of Observations Exhibiting Gross Data Errors
BCS	6885	6883	6780	1.53%
OCR	6644	6639	6495	2.24%
FSM	5442	5442	5424	0.33%
LSM	5156	5150	5127	0.56%
[redacted]				
Manual Letters	6914	6914	6824	1.30%
[redacted]				
SBPS	2244	2239	2213	1.38%
Metered Cancellations	6746	6718	6599	2.18%

Notes and Sources:
1. Data from USPS-T-15, p. 107 (revised 1/25/00).
2. Because Dr. Bozzo records both true missing values and bad data as zeros, these data underestimate the percent of gross errors.

If you do not confirm, explain fully.

(c) Confirm that the percentages of observations you report for the manual flats, manual parcels, and manual Priority Mail operations at page 24 (lines 17-18) of UPS-T-1 are inconsistent with the corrected version of Table 4 from part (b). If you do not confirm, please explain fully.

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(d) Confirm that to be consistent with the corrected version of Table 4 from part (b), the percentages reported at page 24 (lines 17-18) of UPS-T-1 for manual flats, manual parcels and manual Priority Mail should be (respectively) 7 percent, 19 percent, and 13 percent, when rounded to the nearest percentage point. If you do not confirm, please explain fully.

Response to USPS/UPS-T1-10.

(a) I am unaware of errata filed on January 25, 2000. The data in the table in part (b) of this interrogatory appear to reflect the errata to USPS-T-15 filed on January 28, 2000. The errata filed on January 28, 2000, contain revised versions of Tables 3, 6, and 10 for USPS-T-15. As best as I can determine, those errata do not contain any accompanying programs or description of the changes implemented. The notice of those errata merely states, "All changes are peripheral to the proposed variabilities presented in the testimony."

(b) The data in the table in this interrogatory reflect the January 28, 2000, errata. However, I note that these data do not reflect the later errata to USPS-T-15 filed on March 22, 2000, as part of Dr. Bozzo's response to UPS/USPS-T15-9 (Tr. 15/6381-86).

My original implementation of the sample selection methodology described in USPS-T-15 produced the data sample shown in the errata to USPS-T-15 filed on March 22, 2000. However, in an effort to replicate Dr. Bozzo's analysis results, I expended considerable resources to isolate Dr. Bozzo's deviations from his described methodology to generate the results in the tables originally contained in his testimony.

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At the technical conference with Dr. Bozzo held on March 1, 2000, UPS asked a number of questions about Dr. Bozzo's implementation of his sample selection scrubs. However, UPS was asked to submit these questions in interrogatories, which were submitted on March 8, 2000 as interrogatories UPS/USPS-T15-9 through 17. On March 22, 2000, Dr. Bozzo conceded in his answer to interrogatory UPS/USPS-T15-9 that certain "observations were inadvertently omitted" from his analysis and that certain observations with "missing or invalid NWRS wage" data were included in the summary of his regression samples. Tr. 15/6381. Recognizing these oversights, he presented a corrected version of the data in that interrogatory answer.

Having already generated the correct analysis sample and then reverse engineered Dr. Bozzo's analysis sample, I was in the middle of extensions of the volume variability calculations when the new errata were filed. Given the time constraints imposed by the deadline for filing of intervenor testimony and the nature of Dr. Bozzo's data revisions, I judged that the expenditure of time and resources to re-generate the tables and the extensions of the variability calculations presented in UPS-T-1 using Dr. Bozzo's revised data was unwise, especially in view of Dr. Bozzo's assertion that those changes had no substantive effect on the results of his study.

In response to this interrogatory, however, I have prepared the attached Table Prepared in Response to USPS/UPS-T1-10(b), which reflects the errata to USPS-T-15 filed on March 22, 2000. This table reflects the sample sizes (in columns (1), (2), and (3)) which emerge from implementation of the sample selection criteria described in

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USPS-T-15. Column (4) shows the percent of Dr. Bozzo's "non-missing" observations exhibiting gross data errors using the threshold and productivity scrubs.

As I stated in note 2 to my Table 4 at page 25 of UPS-T-1, these figures understate the extent of the error in the MODS data because they fail to account for gaps in reporting. Dr. Bozzo calculates error rates by dividing the number of observations excluded by his threshold and productivity checks by the number of observations with complete data. Gaps in reporting are inappropriately excluded from both the numerator and the denominator of his calculations.

If all activities were present in all facilities in all periods, the number of potential observations for Dr. Bozzo's analyses would equal 7,704 (321 sites times 24 quarters). Potential sample sizes are generally less than this, however, because some activities are not present in all facilities. Some activities initiate operations at particular sites after the start of Dr. Bozzo's sample period, others terminate before the end of the sample period. Excluding cases where the activity is truly absent yields the maximum possible sample for Dr. Bozzo's analysis, and the appropriate denominator for calculating error rates. Missing values for non-MODS variables (e.g., wages or capital index) sometimes reduce the size of this potential sample. To focus on the error rate for the MODS data, I exclude observations with missing values for non-MODS variables from both the numerator and the denominator of the error rate calculation. Following Dr. Bozzo, I also exclude the observation for the first quarter of 1993 in each site.

The numerator for the MODS gross error rate calculations should include not just observations deleted by the productivity and/or threshold calculations, but also

observations that fail to record either TPH/F or work hours when the activity is present. Thus, in the Table Prepared in Response to USPS/UPS-T1-10(b), I add to the threshold and productivity counts shown in column (3) observations with complete non-MODS data and either {TPH/F > 0 and work hours ≤ 0}, {TPH/F ≤ 0 and work hours > 0}, or {TPH/F ≤ 0, work hours ≤ 0, and TPH/F ≤ 0 is intermittent ("gaps", as defined on page 25 of UPS-T-1)}. Observations in each of these three sets should be taken into account as data problems in the overall measure of MODS data quality.

Column (5) of the attached Table Prepared in Response to USPS/UPS-T1-10(b), shows the percentage of observations exhibiting gross data errors after giving proper treatment to non-positive values for the MODS data series TPH and work hours. This column includes the observations that would have been "non-missing" but for poor quality MODS data for either TPH/F or work hours, and provides a count of the number of the total number of gross data errors, including those unaccounted for by Dr. Bozzo's calculation. All of these observations fail the threshold and productivity scrubs. The percent of observations exhibiting gross data errors shown in column (5) of the attached Table is computed as the fraction of non-missing observations that include both non-missing observations that fail the threshold and productivity scrubs, as well as those identified by the selection criteria described in the paragraph above.

I note that Table 4 in UPS-T-1 at page 25, the attached Table Prepared in Response to USPS/UPS-T1-10(b), and the version of Table 4 presented by the Postal Service in this interrogatory *all* suggest that the MODS data series for SPBS and

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Manual Parcels exhibit gross data errors that exceed acceptable levels, as defined by Dr. Bozzo himself in USPS-T-15.

I respond to the remaining parts of the question below in light of the attached Table Prepared in Response to USPS/UPS-T1-10(b).

(c) Confirmed, except that the version of Table 4 presented by the Postal Service in part (b) of this interrogatory is not "the" corrected version of Table 4, since it does not reflect the later corrections made by Dr. Bozzo in response to UPS/USPS-T15-9 (Tr. 15/6381-86). See my response to USPS/UPS-T1-10(b), above.

(d) Confirmed that the percentages stated reflect the (incorrect) data shown in the version of Table 4 presented by the Postal Service in part (b) of this interrogatory. It would be more accurate to replace the percentage of observations exhibiting gross data errors reported at page 24 (lines 17-18) of UPS-T-1 for manual flats, manual parcels, and manual Priority Mail with 7 percent, 28 percent, and 22 percent, for the reasons given in (b), above. It is also noteworthy that the percentage of observations exhibiting gross data errors for LSM and SPBS should be replaced with 7 percent and 8 percent, respectively.

Table Prepared in Response to USPS/UPS-T1-10(b)

MODS Group	Non-Missing	Threshold	Threshold and Productivity	% of Observations Exhibiting Gross Data Errors	
				Ignoring Non-Positive MODS Data	Accounting for Non-Positive MODS data
	(1)	(2)	(3)	(4)	(5)
OCR	6642	6637	6493	2.24%	3.19%
LSM	5155	5149	5126	0.56%	6.94%
BCS	6882	6880	6777	1.53%	1.54%
FSM	5441	5441	5423	0.33%	1.00%
Manual Flats	6910	6910	6416	7.15%	7.16%
Manual Letters	6910	6910	6820	1.30%	1.32%
SPBS	2241	2236	2210	1.38%	8.45%
Manual Parcels	5831	5621	4709	19.24%	28.07%
Priority	5713	5640	4992	12.62%	22.04%

Notes and Sources:

1. Data from USPS-T-15 (revised 3/22/00), Tr. 15/6383, and Reg9398.xls in USPS-LR-I-107.
2. "Accounting for Bad MODS data" column shows the percentage of observations exhibiting gross data errors when properly accounting for true missing value and bad TPH or work hours data.
3. Column (5) counts as bad data observations with complete non-MODS data, but non-positive values for either TPH or HRS.

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USPS/UPS-T1-11. Please refer to the analysis you describe in UPS-T-1 at pages 63-71 (line 10).

(a) Provide, using mathematical notation (see, e.g., USPS-T-15 at page 118, line 4), the estimating equation for each reported "volume-variability" result in Table 11 and Table 12.

(b) Did you explore any alternative model(s) or specification(s) to those provided in response to part (a)? If so, for each alternative model or specification, describe the alternative model or specification, indicate the difference(s) between the alternative and the corresponding model from part (a), and provide a statement of the reasons for rejecting that alternative.

Response to USPS/UPS-T1-11.

(a) As requested, I re-state the estimating equation, separately for Tables 11 and 12.

This estimating equation for column (1), Table 11 at page 68 of UPS-T-1, can be written as:

$$\ln(MPCH) = \alpha_0 + \alpha_1 \ln(LHWSHRAV) + \varepsilon_1$$

where MPCH is GDP-deflator deflated accrued costs for mail processing clerks and mailhandlers, LHWSHRAV is labor hours and workshare-adjusted volume, with lamda = 0.6, 0.7, or 0.8, and ε_1 is the stochastic error term.

The estimating equation for column (2), Table 11, can be written as:

$$\ln(MPCHOM) = \alpha_0 + \alpha_1 \ln(LHWSHRAV) + \varepsilon_2$$

where MPCHOM is GDP deflator deflated accrued costs for mail processing clerks, handlers, and operating equipment maintenance, and ε_2 is the stochastic error term.

The estimating equation for column (3), Table 11 can be written as:

$$\ln(MPCHSOM) = \alpha_0 + \alpha_1 \ln(LHWSHRAV) + \varepsilon_3$$

where MPCHSOM is GDP deflator deflated accrued costs for mail processing clerks, handlers, supervisors, and operating equipment maintenance, and ε_3 is the stochastic error term.

The estimating equation for column (1), Table 12 at page 70 of UPS-T-1 can be written as

$$\ln(MPCH) = \alpha_0 + \alpha_1 \ln \left\{ \left(\frac{Laborwt_{first}}{Vfirst_{98} - \lambda \times Wfirst_{98}} \right) \times (Vfirst - \lambda Wfirst) \right.$$
$$+ \left(\frac{Laborwt_{priority}}{Vpriority_{98} - \lambda \times Wpriority_{98}} \right) \times (Vpriority - \lambda Wpriority)$$
$$+ \left(\frac{Laborwt_{express}}{Vexpress_{98} - \lambda \times Wexpress_{98}} \right) \times (Vexpress - \lambda Wexpress)$$
$$+ \left(\frac{Laborwt_{periodical}}{Vperiodical_{98} - \lambda \times Wperiodical_{98}} \right) \times (Vperiodical - \lambda Wperiodical)$$
$$\left. + \left(\frac{Laborwt_{stda}}{Vstda_{98} - \lambda \times Wstda_{98}} \right) \times (Vstda - \lambda Wstda) + \left(\frac{Laborwt_{stdb}}{Vstdb_{98} - \lambda \times Wstdb_{98}} \right) \times (Vstdb - \lambda Wstdb) \right\} + \varepsilon_1$$

where

- MPCH is the GDP-deflator deflated accrued costs for mail processing clerks and mailhandlers,
- $LABORWT_{first}$ is the share of MODS labor hours in Reg9398.xls processing First Class Mail,
- Vfirst is the RPW volume for First Class Mail,

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- Wfirst is the workshare volume for First Class Mail,
- $Vfirst_{98}$ is the RPW volume for First Class Mail in 1998,
- $Wfirst_{98}$ is the workshare volume for First Class Mail in 1998,
- $LABORWT_{priority}$ is the share of MODS labor hours in Reg9398.xls processing Priority Mail,
- Vpriority is the RPW volume for Priority Mail,
- Wpriority is the workshare volume for Priority Mail,
- $Vpriority_{98}$ is the RPW volume for Priority Mail in 1998,
- $Wpriority_{98}$ is the workshare volume for Priority Mail in 1998,
- $LABORWT_{express}$ is the share of MODS labor hours in Reg9398.xls processing Express Mail,
- Vexpress is the RPW volume for Express Mail,
- Wexpress is the workshare volume for Express Mail,
- $Vexpress_{98}$ is the RPW volume for Express Mail in 1998,
- $Wexpress_{98}$ is the workshare volume for Express Mail in 1998,
- $LABORWT_{periodical}$ is the share of MODS labor hours in Reg9398.xls processing Periodicals mail,
- Vperiodical is the RPW volume for Periodicals mail,
- Wperiodical is the workshare volume for Periodicals mail,
- $Vperiodical_{98}$ is the RPW volume for Periodicals mail in 1998,
- $Wperiodical_{98}$ is the workshare volume for Periodicals mail in 1998,

- $LABORWT_{stda}$ is the share of MODS labor hours in Reg9398.xls processing Standard A mail,
- Vstda is the RPW volume for Standard A mail,
- Wstda is the workshare volume for Standard A mail,
- $Vstda_{98}$ is the RPW volume for Standard A mail in 1998,
- $Wstda_{98}$ is the workshare volume for Standard A mail in 1998,
- $LABORWT_{stdb}$ is the share of MODS labor hours in Reg9398.xls processing Standard B mail,
- Vstdb is the RPW volume for Standard B mail,
- Wstdb is the workshare volume for Standard B mail,
- $Vstdb_{98}$ is the RPW volume for Standard B mail in 1998,
- $Wstdb_{98}$ is the workshare volume for Standard B mail in 1998, and
- ε_1 is the stochastic error term.

Similarly, the estimating equations for column (2) and (3) of Table 12 can be written as:

$$\ln(MPCHOM) = \alpha_0 + \alpha_1 \ln\left\{\left(\frac{Laborwt_{first}}{Vfirst_{98} - \lambda \times Wfirst_{98}}\right) \times (Vfirst - \lambda Wfirst) + \left(\frac{Laborwt_{priority}}{Vpriority_{98} - \lambda \times Wpriority_{98}}\right) \times (Vpriority - \lambda Wpriority) + \left(\frac{Laborwt_{express}}{Vexpress_{98} - \lambda \times Wexpress_{98}}\right) \times (Vexpress - \lambda Wexpress) + \left(\frac{Laborwt_{periodical}}{Vperiodical_{98} - \lambda \times Wperiodical_{98}}\right) \times (Vperiodical - \lambda Wperiodical) + \left(\frac{Laborwt_{stda}}{Vstda_{98} - \lambda \times Wstda_{98}}\right) \times (Vstda - \lambda Wstda) + \left(\frac{Laborwt_{stdb}}{Vstdb_{98} - \lambda \times Wstdb_{98}}\right) \times (Vstdb - \lambda Wstdb)\right\} + \varepsilon_2$$

and

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$$\ln(MPCHSOM) = \alpha_0 + \alpha_1 \ln\left\{\left(\frac{Laborwt_{first}}{Vfirst_{98} - \lambda \times Wfirst_{98}}\right) \times (Vfirst - \lambda Wfirst) + \left(\frac{Laborwt_{priority}}{Vpriority_{98} - \lambda \times Wpriority_{98}}\right) \times (Vpriority - \lambda Wpriority) + \left(\frac{Laborwt_{express}}{Vexpress_{98} - \lambda \times Wexpress_{98}}\right) \times (Vexpress - \lambda Wexpress) + \left(\frac{Laborwt_{periodical}}{Vperiodical_{98} - \lambda \times Wperiodical_{98}}\right) \times (Vperiodical - \lambda Wperiodical) + \left(\frac{Laborwt_{stda}}{Vstda_{98} - \lambda \times Wstda_{98}}\right) \times (Vstda - \lambda Wstda) + \left(\frac{Laborwt_{stdb}}{Vstdb_{98} - \lambda \times Wstdb_{98}}\right) \times (Vstdb - \lambda Wstdb)\right\} + \varepsilon_3$$

respectively, where

- MPCHOM is the GDP-deflator deflated accrued costs for mail processing clerks, mailhandlers, and operating equipment maintenance,
- MPCHSOM is the GDP-deflator deflated accrued costs for mail processing clerks, mailhandlers, supervisors, and operating equipment maintenance, and
- ε_2 and ε_3 are the stochastic error terms.

(b) I explored three alternatives to the model specification described above. The first involved the use of alternative indices to adjust for the effects of inflation. As I describe in footnote 43 on page 65 of my testimony, I selected the GDP deflator because of all the indices, it most closely tracked the available data on wage and salary costs per hour for the Postal Service. It also came the closest of all the indices to direct proportionality with average wage and salary cost per hour.

The second set of alternative specifications closely resembled the model specification set forth above. They differed, however, in that they took the natural logarithm of nominal costs as the dependent variable, and included the log of the inflation index as an explanatory variable. These alternatives included the specification

shown above as a special case. I rejected these alternative specifications because I had strong a priori reasons to expect an estimated coefficient of one for the inflation index variable, and did not see a need to waste a degree of freedom in confirming those reasons.

In early work I explored specifications that used three alternative ways of weighting volumes by class, and that failed to include adjustments for changes in worksharing volume. I computed weights by calculating by class, alternatively, base year revenue per piece, pounds per piece, and incremental labor cost per piece. I rejected the revenue-based weights because of concerns that I might simply be building into the model the effects of past Commission decisions rather than measuring the extent of worksharing. I rejected the weight-based weights because of doubts as to whether average weight per piece for a mail class adequately reflects the per piece mail processing costs associated with a class. The labor cost weights were derived from the testimony of Postal Service witness Smith in this proceeding, and reflected the Postal Service's volume variabilities and distribution keys. As a result, these weights introduced an element of circularity into the analysis that caused me to reject them. Finally, I rejected specifications that did not control for worksharing, since changes in worksharing appear to be an important factor affecting the relationship between volume and cost over the period covered by the data.

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USPS/UPS-T1-12. For each reported "volume-variability" result in Table 11 and Table 12, please provide the data actually employed in the corresponding regression (i.e., after any transformations performed in program volume.prg in UPS-Neels-WP-1). Please provide the data in Microsoft Excel spreadsheet format, and include column labels consistent with the response to USPS/UPS-T1-11(a).

Response to USPS/UPS-T1-12.

Data used to produce the Table 11 and 12 results at pages 68 and 70 of UPS-T-1 are contained in UPS-Neels-WP-1 (UPS-T-1), in files Volume.xls (contained in the directory labeled "Appendix - Source Data", subdirectory "Volume") and Laborwt.dat and Laborwt.dht (shown in Appendix H of UPS-T-1, page H-26, and contained in the directory labeled "Appendix – Construction of Analysis Data", subdirectory "Transition.prg", subdirectory "Laborwt - Gauss (Output Data)"). See "Overview of Analysis Programs.xls" contained in the subdirectory labeled "Appendix – Analysis Program Files" in the electronic version of UPS-Neels-WP-1 (UPS-T-1).

As requested, the transformed data used to produce the Table 11 results are included in library reference UPS-LR-3, in the subdirectory marked "data for table 11 in response to USPS/UPS-T1-12." This subdirectory contains three Excel spreadsheets. The file labeled "data with lamda=0.8.xls" contains data used to generate the results shown in the first (horizontal) panel of Table 11, marked "Work Share Parameter = 0.8." The file labeled "data with lamda=0.7.xls" contains data used to generate the results shown in the second (horizontal) panel of Table 11, marked "Work Share Parameter =

0.7." The file labeled "data with lamda=0.6.xls" contains data used to generate the results shown in the third (horizontal) panel of Table 11, marked "Work Share Parameter = 0.6."

Similarly, transformed data used to generate the Table 12 results are contained in the subdirectory labeled "data for table 12 in response to USPS/UPS-T1-12." (Note, however, that Table 12 data can readily be used to generate Table 11 results). This subdirectory contains two files. The first file, called "volume2.xls," is a modified version of Volume.xis. The modifications are that the cost segment data have been deflated by the GDP deflator, the workshare data have been aggregated by class, and non-essential variables (such as the CPI) have been removed. Further simplifications are not possible because the workshare parameter is estimated along with the other model parameters using nonlinear least squares for the model specified on page 66, line 12, of UPS-T-1 and restated in response to USPS/UPS-T1-11(a). The other file in library reference UPS-LR-3, "Laborwt.xls", contains the term "laborwt" shown in the estimating equation for Table 12.

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USPS/UPS-T1-13. Please refer to your testimony, UPS-T-1, at page 63, lines 5-9. You state that to "capture the effects of structural changes in the underlying technology and organizational design of the postal system, I analyze the effects of mail volume on work hours using aggregate, system-level time series data on volumes and mail processing costs. These aggregate data, by their very nature, automatically reflect net changes in productivity and efficiency from system-wide structural changes."

a. With respect to your statement that "[t]hese aggregate data... automatically reflect net changes in productivity and efficiency from system-wide structural changes," please confirm that "[t]hese aggregate data" refers to the cost data.

b. If your response to part (a) does not confirm, please explain how the aggregate volume data you use in the analysis reported in Table 11 and Table 12 of UPS-T-1 purport to capture changes in any factor explaining mail processing cost other than mail volume. As necessary, resolve any inconsistencies between your response and your apparent use of fixed (FY98) class weights w_j and a fixed worksharing parameter λ to construct your volume index, as described on page 66 of UPS-T-1.

c. Please confirm that if your aggregate time series analysis excludes relevant explanatory variables other than mail volume, the "volume-variability" results you present in Table 11 and Table 12 of UPS-T-1 will be biased and/or inconsistent except in the special case that volume and the excluded variables are orthogonal. If you do not confirm, please resolve the inconsistency between your answer and standard econometric theory (cf., e.g., Proposition 9 at pages 39-40 of Peter Schmidt's *Econometrics*).

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Response to USPS/UPS-T1-13.

(a) I do not confirm. The aggregate data to which I refer include cost, work sharing and volume data.

(b) As I explain on pages 4-18 of UPS-T-1, the Postal Service responds to changes in mail volume in a variety of ways, both facility-wide and system-wide. By limiting the analysis to the plant and MODS-level, the very structure of Dr. Bozzo's approach ignores the bulk of these effects. Since Dr. Bozzo estimates variabilities conditional on the activity being present, he ignores decisions to install new processing activities at a plant. Because he uses data for a fixed panel of plants, Dr. Bozzo ignores the effects of plant openings, closings, expansions, and modifications.

The aggregate analysis presented on pages 63-71 of UPS-T-1 encompasses the overall effect of all of these changes. This analysis of volume variabilities employs both aggregate cost data and aggregate volume data. In using aggregate volume data, I deliberately remove the distinction between mail processed in different sorting operations, with different processing technologies, across different processing facilities. These distinctions reflect the decisions of the Postal Service concerning:

- work load allocation across MODS groups, as discussed on pages 21-23, and 57 of UPS-T-1;
- automation or mechanization in mail sortation, as discussed on pages 5-8 and 11-15 of UPS-T-1;
- changes in activity mix over time, as described on pages 9-11 of UPS-T-1; and

construction, expansion, and modification of existing mail processing plants, as discussed on pages 16-18 of UPS-T-1.

These decisions are a subset of "system-wide structural changes" to which I refer on page 63, lines 5-9, of my testimony. They do not belong in the regression model without explicit consideration of their effects on parameter estimation.

Furthermore, both aggregate cost data and aggregate volume data are required to "capture the effects of structural changes in the underlying technology and organizational design of the postal system." Indeed, as the passage quoted in USPS/UPS-T1-13(a) affirms, the aggregate cost data intrinsically reflect net changes in productivity and efficiency from all Postal Service responses to changes in mail volume. Only when aggregate cost data are used in conjunction with aggregate volume data can one take into account the "net changes in productivity and efficiency from system-wide structural changes" in response to changes in volume.

The aggregate analysis presented in UPS-T-1, like all empirical analyses (including Dr. Bozzo's in USPS-T-15), requires – for the sake of feasibility – the use of certain maintained assumptions. In order to feasibly implement the analysis with the available data, I use time-invariant labor weights (w) to aggregate volumes and a time and class-invariant worksharing parameter (λ) to construct my volume index. Fixing w and λ in this manner has the effect of ignoring certain volume-driven changes that may be reflected only in these parameters. Not only am I unaware of any volume-driven changes that are likely to appear only in these parameters, but the treatment of w and λ as fixed is certainly *not* inconsistent with my response above. Even if these parameters

were to truly vary over time or by class, the aggregate analysis presented in UPS-T-1 comes much closer than does Dr. Bozzo's at capturing the full breadth of the Postal Service's responses to changes in volume.

(c) Not confirmed. In assessing the effects of omitting possible explanatory variables one must draw a clear distinction between explanatory variables that are endogenous and under the control of the Postal Service, and variables that are exogenous, or outside the control of the Postal Service.

Many aspects of postal operations are likely to affect the structural relationship between mail processing labor costs and mail volume. However, many such aspects of postal operations -- including capital intensity, choice of sorting technology, and the structure and organization of the mail processing network -- are under the control of the Postal Service, and likely themselves to change systematically in response to changes in mail volume. Including such explanatory variables in the regression model without accounting properly for their endogeneity is likely to lead to simultaneity bias. Moreover, even if the econometric problems associated with the inclusion of a right hand side endogenous variable could be adequately resolved, the resulting structural model would produce incomplete results. While it would capture the direct effects of volume on labor costs, holding other decision variables constant, it would exclude the indirect effects exerted by volume growth through its influence on these other decision variables.

In such a situation, the appropriate econometric model is a reduced form model that excludes from the right hand side all endogenous variables. The estimated

coefficient on volume in such a model captures both the direct and indirect effects of volume on labor cost. The result is a more comprehensive measure of the volume variability of labor costs, and one that comes closer to meeting the requirements of the Commission.

Certainly, it is basic econometrics that the exclusion from the model of relevant exogenous variables that are correlated with included variables will result in omitted variables bias or inconsistency. All empirical work, including Dr. Bozzo's, is vulnerable to this possibility. Determining whether omitted exogenous variables bias is a substantive concern for any particular application requires consideration of what variables might be missing and what relationship these omitted variables, if they exist, are likely to have with the included explanatory variables. This interrogatory does not give any consideration to these questions, nor does it put forth any explanatory variables that are likely to be excluded from my analysis.

In designing the aggregate cost models presented in UPS-T-1, I have given consideration to what other variables, in addition to volume, might rightly be included in the list of explanatory variables. Obvious candidates included the number of facilities operating in each year and a system-level measure of the degree of mail processing automation. Each of these, however, is a Postal Service decision variable and is jointly determined with costs. In keeping with Dr. Bozzo's analysis in USPS-T-15, the aggregate models in UPS-T-1 exclude endogenous explanatory variables and instead estimate the reduced form effect of changes in volume on costs.

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USPS/UPS-T1-14. Please refer to your testimony, UPS-T-1, at page 64, lines 5-9. You indicate that the cost data for cost segment 3.1 are taken from the Postal Service's response to UPS/USPS-T11-7-17, specifically citing to Tr. 21/9351-9352.

a. Please explain how, if at all, you account for the effect on Cost Segment 3.1 costs of changes in the definition of Cost Segment 3.1 in your aggregate time series analysis, other than conflating the effect with that of volume.

b. If you claim that you account for changes in the definition of Cost Segment 3.1 in response to part (a), please provide detailed citations to the section(s) of your testimony and/or workpapers that describe the variable(s) or other quantitative method(s) you use for this purpose.

Response to USPS/UPS-T1-14.

(a) I have reviewed the documentation on changes in the definition of Cost Segment 3.1 cited by the Postal Service in response to UPS/USPS-T11-8. Several changes in the definition have occurred. Because they do not appear to be of a significant nature, I have not accounted explicitly for these changes.

(b) Not applicable.

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USPS/UPS-T1-15. Please refer to your testimony, UPS-T-1, at page 69, lines 1-8. At lines 5-7, you discuss the "importance of considering capital costs in evaluating the response of mail processing costs to increases in volume." You also refer at lines 7-8 to "Dr. Bozzo's argument that the capital intensity of mail processing is unaffected by growth in mail volume."

a. Please confirm that the three cost segments you analyze in your aggregate time series analysis represent labor costs. If you do not confirm, please indicate which non-labor cost segments you include in your analysis.

b. Please provide a detailed citation to the portion of Dr. Bozzo's testimony containing "Dr. Bozzo's argument that the capital intensity of mail processing is unaffected by growth in mail volume."

Response to USPS/UPS-T1-15.

(a) Confirmed. However, it is important to note that the labor costs associated with the maintenance of mail processing equipment (Cost Segment 11.2) are directly related to and are most certainly positively correlated with the size of the mail processing equipment stock. Thus, as automation or mechanization increases in response to mail volume, the labor costs associated with the maintenance of mail processing equipment will also increase. In this manner, the aggregate models of volume variability that use both Cost Segments 3.1 and 11.2 are able to incorporate labor ***and*** capital responses to changes in mail volume.

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(b) Dr. Bozzo maintains that the capital intensity of mail processing is unaffected by growth in mail volume in at least three separate contexts in USPS-T-15. First, Dr. Bozzo describes the "reasonable assumption" of homotheticity, which he defines on page 40 of USPS-T-15: "Homotheticity implies that changing the level of output of the operation will not alter relative factor demands such as the capital/labor ratio. . . ." The capital/labor ratio is a measure of capital intensity. By assuming that it *does not change when output or volume changes*, Dr. Bozzo essentially argues that "the capital intensity of mail processing is unaffected by growth in mail volume."

Second, Dr. Bozzo argues that the manual ratio is not volume-variable in section IV.F. of his testimony, USPS-T-15, at pages 56 through 58. The manual ratio is defined as the fraction of letters or flats processed manually and is a measure of capital intensity. By assuming that it is non-volume variable, Dr. Bozzo argues that "the capital intensity of mail processing is unaffected by growth in mail volume."

Third, Dr. Bozzo's labor demand model treats the capital stock variable, QICAP, as an exogenous variable that is not jointly determined, along with work hours, in response to changes in volume. Dr. Bozzo's labor demand model is specified on page 117 of USPS-T-15. If Dr. Bozzo believed that the capital intensity of mail processing is affected by growth in mail volume, he would have had to model the Postal Service's joint decision of work hours and capital. Instead, by treating capital as exogenous in the work hours equation, he implicitly argues that "the capital intensity of mail processing is unaffected by growth in mail volume."

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USPS/UPS-T1-16. Please confirm that the work sharing parameter, λ, that you describe at page 66, line 14, to page 67, line 1, does not vary by class or subclass. If you do not confirm, please explain.

Response to USPS/UPS-T1-16.

Confirmed.

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USPS/UPS-T1-17. Please consider the workhour weights w_j, which you describe in your testimony, UPS-T-1, at page 66, lines 2 and 14.

a. Please confirm that the notation $HRS_{j,98}$ at page 66, line 2, and $L_{j,98}$ at page 66, line 4, refer to the same thing. If you do not confirm, please explain fully the differences between the two.

b. Please confirm that the workhours by class that you use in the construction of w_j do not include workhours from mail processing cost pools other than the nine cost pools in the column headings of the "transition matrix" you present in UPS-T-1, Appendix G.

c. If you confirm in response to part (b), please explain fully why you ignored the mail processing cost pools other than the nine cost pools in the column headings of the "transition matrix" you present in UPS-T-1, Appendix G.

d. If you do not confirm in response to part (b), please provide an Excel spreadsheet containing a detailed derivation of the data you present in UPS-T-1, Appendix H.

Response to USPS/UPS-T1-17.

(a) Confirmed.

(b) Confirmed.

(c) Construction of the labor weights required information on MODS work hours. For this purpose I used data taken from Reg9398.xls provided in USPS-LR-I-107. This source did not include data for non-MODS facilities or for a number of MODs cost pools other than those examined by Dr. Bozzo. To the extent that labor weights

based on these direct MODS pools reflect the distribution of volume by class in indirect MODS pools and in other parts of the mail processing system, the use of the nine cost pools shown in USPS-T-1, Appendix G, should provide a reliable estimate of overall volume variability.

(d) Not applicable.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-18. Please refer to your biography at lines 5-6, where you state, "The aviation sector has been a particular focus of my work..." Please indicate whether you have performed any cost, demand, or other economic analysis of the aviation sector in which you have used revenue passenger miles (or kilometers), available seat miles, revenue ton-miles, or other similar measures, to characterize the output of airline(s). If so, for each such study, indicate the output measure you used, and provide a brief description of the analysis you performed (the approximate level of detail of the bullet points in the first several pages of Appendix A to your testimony will suffice).

Response to USPS/UPS-T1-18.

I interpret the word "similar" in the interrogatory to include other measures involving the product of a quantity and a distance. I have not used such output measures in my work, and can therefore identify no such studies.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-19. Please refer to pages 4-5 of your testimony, UPS-T-1, where you indicate (at page 4 line 21 et seq.) that "[t]o some extent, adjustments can be made to accommodate growth in volume, although over a very short time frame the available options may be limited." In the accompanying footnote 4 (on page 5), you indicate that the adjustments you have in mind include "a supervisor ask[ing] workers to defer time off, authoriz[ing] extra overtime, monitor[ing] workers more closely to minimize unproductive downtime, or alter[ing] work practices...to increase productivity." In your opinion, do these "adjustments" typically occur within a time frame of one calendar year or less?

Response to USPS/UPS-T1-19.

Yes.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-20. Please refer to your testimony at page 22, lines 1-2. You state, "It seems highly unlikely that the operations of these parallel processing activities [manual and mechanized/automated operations for shape-based mail streams] would not be affected by the way in which mail is allocated between them." Does your statement imply that a variable (or variables) capturing the allocation of mail or mail handlings should be included in appropriately specified mail processing cost or labor demand models, at least unless a specification test demonstrates it (or them) to be irrelevant? Please reconcile any negative response with the quoted statement.

Response to USPS/UPS-T1-20.

The interrogatory seems to imply a situation in which separate cost or labor demand models are being estimated for each of the parallel processing activities. My response assumes that this is the thrust of the question.

Inclusion of such variables could potentially capture the effects of such interactions if the models were fully and appropriately specified, and if such variables were treated appropriately in calculating volume variability. The latter qualification is an important one. The allocation of mail between parallel sorting activities is a decision made by the Postal Service, and is thus endogenous to the mail processing operation. To the extent that such allocation decisions change with shifts in volume, such indirect effects of volume growth would have to be factored into the calculation of volume variability. See my response to USPS/UPS-T1-13(c).

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Inclusion of cross-activity allocation variables in a set of activity-specific cost or labor demand models is not the only or even necessarily the most appropriate way of capturing the interaction effects cited in my testimony. One might also, for example, combine all of the processing activities for a specific shapes-based mailstream into a single model, and include among the explanatory variables measures of the amount of automated processing capacity available. With more time and study, I am sure that other approaches could be developed.

Hence, I do not believe that the solution offered in the text of the interrogatory is the only one that is workable, or that the specific version of that solution used by Dr. Bozzo (inclusion of a manual ratio variable) is correct.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-21. Please refer to your testimony, UPS-T-1, at page 21, lines 3-14. Does your use of the term "largely" in line 3 of the cited testimony indicate that Dr. Bozzo accounts for potential interrelationships of operations, at least in some way? Explain fully any negative answer.

Response to USPS/UPS-T1-21.

Yes.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-22. Please refer to your testimony, UPS-T-1, at page 21, lines 15-18. You illustrate the interactions between MODS activities with a description of opening unit operations. Please refer also to Dr. Bozzo's response to MPA/USPS-T15-1, Tr. 15/6251-6255, and to the accompanying library reference USPS-LR-I-178.

a. Please confirm that opening unit operations are not among the ten MODS operation groups for which econometric results are presented in USPS-T-15. If you do not confirm, please explain.

b. Please confirm that the MODS sorting operation groups are the "downstream operations" to which your example refers. If you do not confirm, please explain.

c. Is it your understanding that the opening unit models presented by Dr. Bozzo in response to MPA/USPS-T15-1 treat MODS volumes in downstream operations and ODIS destinating mail volumes, among other things, as factors "driving" opening unit workhours? If not, please explain.

Response to USPS/UPS-T1-22.

(a) Confirmed.

(b) Confirmed.

(c) It is my understanding that Dr. Bozzo treats TPH/F and destinating mail volumes as factors "driving" opening unit workhours.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-23. Please refer to your testimony, UPS-T-1, at page 23, lines 15-19. Do you contend that it is impossible to incorporate the measured effect of capital on labor hours in the variability estimates, if desired? If you claim that it is impossible to do so, please explain fully and support your answer with appropriate references to the economic and/or econometric literature.

Response to USPS/UPS-T1-23.

No. However, an appropriate measure of variability must account for more than just the effects of volume on labor hours, holding capital constant. It must also factor in the effects that volume growth has on capital expenditures, as well as its indirect effects on labor hours through its influence on capital.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-24. Please refer to your testimony, UPS-T-1, at page 25, lines 1-2. Please describe the procedures you employed in the "inspection" you claim to have performed.

Response to USPS/UPS-T1-24.

The first phase of this inspection involved manual review of the data contained in reg9398.xls, provided in USPS-LR-I-107, to assess the frequency with which isolated instances of zero TPH/F and/or zero labor hours were reported. I defined these isolated instances as one or more successive quarters of zero or negative values for a MODS activity and a site that are both preceded and followed by reporting of non-zero values. In other words, I excluded periods of zero TPH/F and hours for a site at the beginning or end of the observation period, since such periods could have corresponded respectively to the period before the activity was installed at the site, or the period after it had been shut down. I found many such instances.

The second phase of this inspection involved the development of software to scan the data set and provide a full and accurate count of the number of such gaps in reporting. The computer program developed for this purpose is named GAPS.PRG, and is included in my workpapers. Results of this analysis are reported in Table 5 on page 27 of my testimony.

Although it is possible that some of the gaps identified in this way represent true zeros (i.e., legitimate periods when no mail was processed), they are too numerous and too long to be explained entirely by periods of idleness. Moreover, frequent

inconsistencies between the TPH/F data and the labor hour data demonstrate the existence of numerous reporting errors.

The table below shows the number of instances in which a MODS activity at a site reports either positive TPH/F and zero labor hours, or vice versa. There is no plausible operational explanation for such a pattern. It can be explained only by reporting errors.

Tabie in Response to USPS-UPS-T1-24
MODS Hours and Pieces Data Quality

MODS Group	Pieces <=0	Hours <=0	Hours <=0 Pieces >=0	Hours >0 Pieces =0	0-40 Hours Pieces <=0
BCS	259	246	2	15	3
OCR	656	608	6	52	30
FSM	1872	1839	4	37	28
LSM	2137	1762	5	374	286
Manual Flats	171	156	1	16	2
Manual Letters	167	153	2	14	4
Manual Parcels	1147	852	231	525	187
Priority	1605	981	58	659	110
SPBS	5288	5094	8	202	119

Notes and Sources:

1. Data are from reg9398.xls, provided in USPS-LR-I-107.
2. Following USPS-T-15, pieces for manual operations equal total piece handlings (TPH). Pieces for automated operations equal total pieces fed (TPF), except for observations where TPF<TPH.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-25. Please refer to your testimony, UPS-T-1, at page 28, lines 6-9. Please provide a detailed citation to support the explanation you attribute to Dr. Bozzo.

Response to USPS/UPS-T1-25.

See USPS-T-15, page 127, lines 5-7. I misspoke when I included SPBS. The statement by Dr. Bozzo refers only to manual parcel and Priority.

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USPS/UPS-T1-26. Please explain your understanding of the method by which TPH and TPF for SPBS operations are measured. Specifically, is it your understanding that TPH and TPF for SPBS operations are obtained from machine counts?

Response to USPS/UPS-T1-26.

In discussing the recording of first handling pieces for parcels, the Management Operating Data System Handbook M-32 (Docket No. R97-1, USPS-LR-H-147) states in section 212.14 that "In parcel operations, first handling pieces are determined by an actual count of parcels or by standard conversion rates of the number of pieces per container (sack or hamper)."

In section 411, "Recording Procedures," that same document directs personnel to "Use console or meter readings of mechanical processing equipment where available." It also directs personnel to "Record parcel volume by container count, meter readings of parcel sorting machines, or other counters." In section 412.4, "Recording Total Piece Handlings," the manual states that "For machine operations . . . the MOD System records the actual total piece handling from meter readings or printouts rather than from projections."

I infer from the statements quoted from sections 411 and 412.4 of the MODS manual that at least some parcel sorting machines are equipped with counters, and that when counter data is available, it is used to determine TPH.

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USPS/UPS-T1-27. Is it your understanding that bundles of flat-shape Periodicals and Standard A are commonly handled in SPBS operations? If not, please describe the basis for your understanding.

Response to USPS/UPS-T1-27.

Yes.

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USPS/UPS-T1-28. Is it your understanding that bundles of flat-shape Periodicals and Standard A are commonly handled in manual parcel and/or Priority Mail operations? If so, please describe the basis for your understanding.

Response to USPS/UPS-T1-28.

Postal Service witness Kingsley states that "When pallets and sacks contain bundles made up to finer sortation levels than the container, a bundle sort is required. This is accomplished in a manual or mechanized operation." USPS-T-10 at 19-20. She does not identify where manual sortation takes place. I do not know for certain where such sortation takes place.

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USPS/UPS-T1-29. Please refer to your testimony, UPS-T-1, at page 29, lines 16-18.

a. Is the "trend over time in weight per piece" to which you refer, specifically, a trend over time in weight per piece *at the source/type code level*? If not, please explain.

b. To be "capable of distorting Dr. Bozzo's volume-variability estimates," is it necessary that the effect of the "false trend" not be captured by trend variables included in the regression models? Please explain your answer fully.

Response to USPS/UPS-T1-29.

(a) I was referring to the level at which national conversion factors are specified and applied. I understand based on the Management Operating Data System Handbook M-32 (Docket No. R97-1, USPS-LR-H-147, § 413) that they are specified at the source/type code level.

(b) Yes. Dr. Bozzo does include trend variables in his model, and if all sites shared the same trends in weight per piece, the effects of those trends would probably be captured by Dr. Bozzo's trend variables. However, if each site had its own unique trend in weight per piece, their effects would be captured neither by his trend variables nor by his site-specific fixed effects.

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USPS/UPS-T1-30. Please refer to your testimony, UPS-T-1, at page 29, line 22, to page 30, line 1. Please confirm that your statement would still be correct if it read, "...the fixed effects, the random effects, the pooled and the between estimators will all be inconsistent." If you do not confirm, please provide a mathematical proof that the between estimator is consistent when site-specific measurement errors are present.

Response to USPS/UPS-T1-30.

Confirmed in the case of fixed site-specific measurement error, or measurement error involving site-specific trends in measurement error. Not confirmed in the case of IID (i.e., identically and independently distributed) measurement error. In this latter case, the averaging across time periods that the between model is based upon would tend to reduce the variance of the measurement error, with a resulting loss in bias.

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USPS/UPS-T1-31. Please refer to your testimony, UPS-T-1, at page 32, lines 16-21, and footnote 31.

a. Please confirm that your reference in footnote 31 to page 55 of USPS-T-15 is, specifically, to the paragraph ending at page 55, line 8. If you do not confirm, please explain.

b. If you confirm in response to part (a), please further confirm that the paragraph you cite begins at page 54, line 15, of USPS-T-15. If you do not confirm, please explain.

c. If you confirm in response to part (a), please further confirm that the paragraph you cite begins with the sentences, "The Postal Service's methods recognize that the absolute and relative amount of handlings per piece may vary over time, due to changes in Postal Service operations, mailer behavior, or other factors. The annual updates of the cost pool totals and distribution key shares permit the assumed handling levels and proportions to vary over time." If you do not confirm, please explain.

Response to USPS/UPS-T1-31.

(a) Confirmed.

(b) Confirmed.

(c) Confirmed.

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USPS/UPS-T1-32. Please refer to your testimony, UPS-T-1, at pages 34-35. You indicate at page 34, lines 13-14, that "measurement error in the dependent variable is absorbed in the error term." You subsequently provide estimating equations for the regressions you use to estimate the elasticities of TPH (or TPF) with respect to FHP at page 35, lines 3 and 7.

a. Please confirm that the terms u_{it} in the equations cited above denote the "error term[s]" to which you refer in the statement quoted above. If you do not confirm, please explain.

b. Please confirm that, for a multivariate linear regression, a consistent estimator of the error variance $\sigma_u^2 = \text{var}(u_{it})$ is $\left(\sum \hat{u}_{it}^2\right)/(N_{obs} - K)$; where $\sum \hat{u}_{it}^2$ is the sum of squared residuals from the regression, N_{obs} is the number of observations, and K is the number of regressors. If you do not confirm, please provide the formula you believe to be correct for a consistent estimator of the error variance σ_u^2, and provide a proof (or a citation to a proof) of its statistical properties.

c. Please provide the estimated error variances for each regression reported in Table 6 and Table 7 of UPS-T-1, using the formula that you confirm (or otherwise provide) in response to part (b). If the estimated error variances are provided in your workpapers, UPS-NEELS-WP-1, please provide detailed citations to the locations in the workpapers where they may be found. Otherwise, please provide detailed documentation of the methods you use to generate your response, including computer programs you employ and the output of those programs.

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Response to USPS/UPS-T1-32.

(a) Confirmed.

(b) I do not confirm. A consistent estimator of the error variance σ_u^2 is given by: $\sum_i \hat{u}_{it}^2 /(N_{obs}-K-N_{sites})$

where $\sum_i \hat{u}_{it}^2$, N_{obs}, and K are as defined in this question and N_{sites} is the number of mail processing facilities included in the estimation. See page 467 of William H. Greene, Econometric Analysis (New York: Macmillan Publishing Company, 2nd edition, 1993), or page 38 of Cheng Hsiao, Analysis of Panel Data (New York: Cambridge University Press, 1986).

(c) See attached "Table 1 of 2 Prepared in Response to USPS/UPS-T1-32" and "Table 2 of 2 Prepared in Response to USPS/UPS-T1-32." The estimated error variance for all but Parcels in Table 6 of UPS-T-1 is calculated by the program fhptphm.prg, contained in the subdirectory "Appendix – Analysis Program Files/fhptphm.prg" of UPS-Neels-WP-1. The estimated error variance for the shapes level analysis in Table 7 and Parcels in Table 6 is calculated by the program fhptphs.prg, contained in the subdirectory "Appendix – Analysis Program Files/fhptphs.prg" of UPS-Neels-WP-1 (UPS-T-1). The estimated error variance (called "sig2e," in the programs) is calculated in the GAUSS subroutine called "fe." To obtain the estimates for the attached tables, I simply modified fhptphm.prg and fhptphs.prg to print out "sig2e" after the estimation of each model shown in Tables 6 and 7.

Table 1 of 2 Prepared in Response to USPS/UPS-T1-32

Estimates of the Elasticity of TPH with respect to FHP
Imputed from the Reverse Regression of FPH on TPH - MODS Level Analysis

MODS Group	Specification	AR1-Fixed Effects	Ho: Proportionality	F-Statistic	Pvalue	Estimated Error Variance
OCR	Full	1.597	reject	20.304	0.000	0.034
		(0.043)				
	Partial	1.386	reject			0.036
		(0.030)				
LSM	Full	1.069	reject	6.446	0.000	0.184
		(0.030)				
	Partial	0.956	reject			0.189
		(0.018)				
BCS	Full	2.091	reject	25.748	0.000	0.017
		(0.058)				
	Partial	1.560	reject			0.018
		(0.027)				
Manual Letters	Full	1.229	reject	14.606	0.000	0.009
		(0.012)				
	Partial	1.174	reject			0.009
		(0.010)				
FSM	Full	1.544	reject	56.969	0.000	0.006
		(0.027)				
	Partial	1.138	reject			0.007
		(0.012)				
Manual Flats	Full	1.010	reject	9.000	0.000	0.008
		(0.008)				
	Partial	0.969	reject			0.009
		(0.006)				
Parcels	Full	1.795	reject	7.692	0.000	0.139
		(0.099)				
	Partial	1.786	reject			0.143
		(0.088)				
Priority	Full	1.013	reject	1.697	0.030	0.003
		(0.003)				
	Partial	1.010	reject			0.003
		(0.002)				

Notes and Sources:

1. Data from fhp9398.xls and reg9398.xls, provided in USPS-LR-I-186 and USPS-LR-I-107, respectively.
2. Standard errors shown in parentheses.
3. Estimated effects are significantly different from zero and one at or below the 1% significance level.
4. Partial specification regresses ln(FHP) on ln(TPH) and the square of ln(TPH).
5. Full specification regresses ln(FHP) on ln(TPH), the square of ln(TPH), ln(DPT), and a set of 18 time dummies (one for each quarter, excluding the first one).
6. F-Tests (statistics and pvalues shown in table) uniformly favor the full specification.
7. Appendix C of UPS-T-1 shows the full set of estimation results.

Table 2 of 2 Prepared In Response to USPS/UPS-T1-32

Estimates of the Elasticity of TPH with respect to FHP
Imputed from the Reverse Regression of FPH on TPH - Shapes Level Analysis

Shape	Specification	AR1-Fixed Effects	Ho: Proportionality	F-Statistic	Pvalue	Estimated Error Variance
Letters	Full	2.062	reject	14.148	0.000	0.009
		(0.061)				
	Partial	1.689	reject			0.010
		(0.034)				
Flats	Full	1.318	reject	46.449	0.000	0.003
		(0.015)				
	Partial	1.078	reject			0.004
		(0.009)				
Parcels	Full	1.795	reject	7.691	0.000	0.139
		(0.099)				
	Partial	1.786	reject			0.143
		(0.088)				
Priority	Full	1.013	reject	1.697	0.030	0.003
		(0.003)				
	Partial	1.010	reject			0.003
		(0.002)				

Notes and Sources:

1. Data from fhp9398.xls and reg9398.xls, provided in USPS-LR-I-186 and USPS-LR-I-107, respectively.
2. Standard error shown in parentheses.
3. Estimated effects are significantly different from zero and one at or below the 1% significance level.
4. Partial specification regresses ln(FHP) on ln(TPH) and the square of ln(TPH).
5. Full specification regresses ln(FHP) on ln(TPH), the square of ln(TPH), ln(DPT), and a set of 18 time dummies (one for each quarter, excluding the first one).
6. F-Tests (statistics and pvalues shown in table) uniformly favor the full specification.
7. Appendix D of UPS-T-1 shows the full set of estimation results for Letters, Flats, and Parcels. Appendix C shows the full set of estimation results for Priority.

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USPS/UPS-T1-33. Please refer to your testimony, UPS-T-1, at page 35, lines 3 and 7, where you provide mathematical formulas for the estimating equations you employ in your analysis of the relationship between FHP and TPH. Please interpret the term TPH to refer to TPF where appropriate. Please also refer to your testimony at page 34, line 10, where you indicate that you estimated the "reverse regression" of FHP on TPH and other variables.

a. Please confirm that, based upon the estimating equations provided at page 35, lines 3 and 7, the mathematical formula for the elasticity of FHP with respect to TPH is $\partial \ln FHP / \partial \ln TPH = \beta_1 + 2\beta_2 \ln TPH$. If you do not confirm, please provide a mathematical derivation of the elasticity formula you believe to be correct.

b. Please confirm that your estimators of the elasticity of TPH with respect to FHP, used to generate the results presented in Table 6 and Table 7 of UPS-T-1, have the form $(\partial \ln TPH / \partial \ln FHP) = (\hat{\beta}_1 + 2\hat{\beta}_2 \ln TPH^*)^{-1}$, where $\hat{\beta}_1$ and $\hat{\beta}_2$ are the estimates (from Appendix C) of the parameters β_1 and β_2 from the appropriate estimating equation, and $\ln TPH^*$ is the value of $\ln TPH$ at which the elasticity formula from part (a) of the interrogatory is evaluated. If you do not confirm, please provide mathematical formula(s) for the estimator(s) you employ, and also please provide detailed citations to your workpapers, UPS-NEELS-WP-1, indicating where the formula you provide, and the implementation of the formula, may be found.

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c. Please describe the value(s) of $\ln TPH$ you chose to evaluate the elasticity estimator from the response to part (b). Please provide detailed citations to the section(s) of your workpapers, UPS-NEELS-WP-1, in which your calculations are implemented.

d. Please confirm that the estimating equations for the conceptually correct "non-reverse" regression of TPH on FHP and other variables—i.e., the estimating equations you presumably would have employed, if the FHP data were to have appropriate statistical qualities—corresponding to the reverse regressions you actually estimated would be:

$\ln(TPH_{it}) = \delta_i + \gamma_1 \ln(FHP_{it}) + \gamma_2 \ln(FHP_{it})^2 + \gamma_3 \ln(DPT_{it}) + \gamma_4 TimeDummies_{it} + v_{it}$ (the "full estimating equation"), or $\ln(TPH_{it}) = \delta_i + \gamma_1 \ln(FHP_{it}) + \gamma_2 \ln(FHP_{it})^2 + v_{it}$ (the "restricted model"). If you do not confirm, please provide the "non-reverse" estimating equations you believe to be conceptually correct, and explain fully the basis for your belief.

Response to USPS/UPS-T1-33.

(a) Confirmed.

(b) Confirmed, with the exception that estimates for β_1 and β_2 for Parcels in Table 6 are from Appendix D, not Appendix C. Similarly, non-Priority estimates for β_1 and β_2 used for Table 7 are also from Appendix D.

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(c) In keeping with Dr. Bozzo's preferred elasticity calculations presented in USPS-T-15, I evaluate the elasticity of the estimator (Est) from part (b) at the arithmetic sample mean of TPH ($\overline{TPH}$):

$$Est(\frac{\partial \ln(TPH)}{\partial \ln(FHP)}) = \left(\hat{\beta}_1 + 2 \times \hat{\beta}_2 \ln(\overline{TPH})\right)^{-1}$$

For all but Parcels in Table 6, this calculation is implemented in program fhptphm.prg, contained in the subdirectory "Appendix – Analysis Program Files/fhptphm.prg" of UPS-Neels-WP-1. For all but Priority, the shapes level analysis in Table 7, and Parcels in Table 6, this calculation is implemented in the program fhptphs.prg, contained in the subdirectory "Appendix – Analysis Program Files/fhptphs.prg" of UPS-Neels-WP-1. The estimate of the marginal effect of TPH on FHP ($\beta_1 + \beta_2$ ln TPH) is calculated in the GAUSS subroutine called "mareff." The estimate of the marginal effect of FHP on TPH (($\hat{\beta}_1 + \hat{\beta}_2$ ln TPH)$^{-1}$) is printed out in the GAUSS subroutine called "out."

(d) I do not confirm. The model I estimated cannot be transformed mathematically into the model described in the interrogatory. The "non-reverse" regression of TPH on FHP which corresponds to the model that I have estimated is not the one presented above in USPS/UPS-T1-33(d). The correct "non-reverse" regression equations are implicitly defined by the regression models on page 35, lines 3 and 7, of my testimony.

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USPS/UPS-T1-34. Please refer to your response to USPS/UPS-T1-2(c). The interrogatory read, in part, "if you contend the 100 percent variabilities represent the elasticity of 'X' with respect to 'Y,' provide a precise definition of 'X' and 'Y.'" You responded, "'X' equals mail processing labor cost for a specific MODS pool. 'Y' represents the number of pieces of mail of a specific subclass delivered by the Postal Service." Please also refer to your response to USPS/UPS-T1-4.

a. Please confirm that the "variabilities" defined in your response to USPS/UPS-T1-2(c), in mathematical notation, are the elasticities $\partial \ln C_i / \partial \ln DV_j$, where C_i denotes the labor cost for mail processing cost pool *i* and DV_j denotes the pieces of mail of subclass *j* "delivered by the Postal Service." If you do not confirm, please provide the formula you believe to be correct and a full explanation of how it relates to your response to USPS/UPS-T1-2(c).

b. Please confirm that "100 percent variabilities" as defined in your response to USPS/UPS-T1-2(c) imply, in mathematical notation, $\partial \ln C_i / \partial \ln DV_j = 1$, where the variables are defined as in part (a) of this interrogatory. If you do not confirm, please provide a detailed derivation of the mathematical relationship between the elasticity $\partial \ln C_i / \partial \ln DV_j$ and the "100 percent variabilities" you believe to be correct.

Response to USPS/UPS-T1-34.

(a) Confirmed.

(b) Confirmed.

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USPS/UPS-T1-35. Please refer to your response to USPS/UPS-T1-2(d). The interrogatory requested that you provide the "precise economic interpretation(s) of the distribution key shares used by Mr. Sellick to compute mail processing "costs" by cost pool and subclass." You responded, "Mr. Sellick's IOCS-based distribution key shares represent the shares of costs, by MODS pool, accounted for by the various mail subclasses." Please also refer to your response to USPS/UPS-T1-2(b), where you state, "Dividing Mr. Sellick's subclass costs by the corresponding RPW volumes does give the best approximations of the partial derivatives of mail processing labor costs with respect to subclass volumes that are available in this record." Please also refer to Mr. Sellick's response to USPS/UPS-T2-1(c), in which Mr. Sellick confirms that the subclass costs he computes can be expressed as "the product of total cost for the pool, a volume-variability factor equal to (or nearly equal to) one (or 100 percent), and a distribution key share for the cost pool and subclass derived from IOCS data."

a. Please confirm that the "costs" to which you refer in your response to USPS/UPS-T1-2(d) are volume-variable costs, by MODS pool. If you do not confirm, please explain fully.

b. Please confirm that the "volume-variability factor" employed, explicitly or implicitly, by Mr. Sellick would be defined, in mathematical notation, by the formula you confirmed or provided in response to USPS/UPS-T1-34(a). If you do not confirm, please explain fully.

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c. Please confirm that the formula confirmed by Mr. Sellick can be represented, in mathematical notation, as $VVC_{ij} = C_i \cdot \varepsilon_i \cdot d_{ij}$, where VVC_{ij} is the volume-variable cost in cost pool i for subclass j, C_i is defined in interrogatory USPS/UPS-T1-34(a), ε_i is the volume-variability factor (elasticity) you confirmed or provided in response to USPS/UPS-T1-34(a), and d_{ij} is the IOCS-based distribution key share computed by Mr. Sellick. If you do not confirm, please provide the formula you believe to be correct, and explain its derivation fully.

d. Please confirm that your response to USPS/UPS-T1-2(b) implies, in mathematical notation, $VVC_{ij} / V_j^{RPW} = C_i \cdot \varepsilon_i \cdot d_{ij} / V_j^{RPW} \cong \partial C_i / \partial V_j^{RPW}$, where V_j^{RPW} is the RPW volume of subclass j, and the symbol $\cong$ denotes "approximately equals." If you do not confirm, please provide the formula you believe to be correct, and explain its derivation fully.

e. Please describe in detail all assumptions needed for the approximation $C_i \cdot \varepsilon_i \cdot d_{ij} / V_j^{RPW} \cong \partial C_i / \partial V_j^{RPW}$ to hold. For each assumption, please describe in detail and provide all quantitative evidence you have to validate the assumption. If you have no quantitative evidence to validate an assumption, please so indicate.

Response to USPS/UPS-T1-35.

(a) Confirmed.

(b) Confirmed.

(c) Confirmed.

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(d) Confirmed.

(e) A volume variability of 100 percent for some cost pool *i* implies that:

(i) $C_i = \sum_j \alpha_{ij} V_j^{RPW}$.

Inspection of this equation shows that if all volumes double, costs in this pool will also double, as 100 percent volume variability would imply. In this context it is the case that:

(ii) $\partial C_i / \partial V_j^{RPW} = \alpha_{ij}$

(iii) $VVC_{ij} = \alpha \cdot V_j^{RPW}$

(iv) $\sum_j VVC_{ij} = \sum_j \alpha_{ij} V_j^{RPW} = C_i$

(v) $d_{ij} = VVC_{ij} / \sum_k VVC_{ik} = VVC_{ij} / C_i$

(vi) $\varepsilon_i = 1$

(vii) $C_i \cdot \varepsilon_i \cdot d_{ij} / V_j^{RPW} = VVC_{ij} / V_j^{RPW} = \alpha_{ij} = \partial C_i / \partial V_j^{RPW}$

Equations (ii) though (vii) all follow from equation (i) and the definitions of VVC_{ij} and d_{ij}. Equation (i) follows from the definition of 100 percent volume variability. Thus, the only condition that must hold for the "approximation" given in the interrogatory to hold is for volume variability to equal 100 percent.

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USPS/UPS-T1-36. Please refer to your response to USPS/UPS-T1-3(c). You state, "The relationship between incremental RPW volume and incremental FHP volume will depend upon routing, and, for a given routing, the two will generally vary in direct proportion." You subsequently describe some ways in which "exceptions to direct proportionality between RPW volume and FHP volume may sometimes occur," but contend "Any departures from direct proportionality between FHP volume and RPW volume would have an equal or greater effect on the relationship between TPF and RPW volume."

a. If "routing" is defined as the routing of a piece of mail *within* a mail processing facility, would it be correct to say, "The relationship between incremental FHP volume and incremental TPF (or TPH) volume will depend upon routing, and, for a given routing, the two will generally vary in direct proportion"? If not, please explain fully why not.

b. Please confirm that some of the possible "exceptions to direct proportionality" you describe may have the effect of decreasing FHP per RPW piece (e.g., increased presorting and/or drop-shipping of mail). If you do not confirm, please explain fully.

c. Please indicate whether you have any quantitative evidence to support your contention that, "Any departures from direct proportionality between FHP volume and RPW volume would have an equal or greater effect on the relationship between TPF and RPW volume." If so, please provide and describe in detail all such evidence.

d. Please explain whether there are possible exceptions to your statement, "Any departures from direct proportionality between FHP volume and RPW volume would have an equal or greater effect on the relationship between TPF and RPW volume." For instance, could a "reconfiguration of the network" add an intermediate processing step without necessarily increasing the number of sorts required to "finalize" a piece of mail to its destination? Please explain.

Response to *USPS/UPS-T1-36.*

(a) It is probably fair to say that for a given "routing" as defined in the interrogatory, TPH (or TPF) and FHP will vary in direct proportion. However, my ability to answer this question in the affirmative depends heavily on the qualification "for a given routing." As I explain on pages 5-16 of my testimony, I believe that "routing" – meaning, in this context, which sorting activities are present in a plant and how mail flows are organized among them – depends in significant ways on the volume of mail being processed. Assuming such effects away, as this interrogatory does, limits the applicability of my response to an artificial situation likely to be of little practical relevance.

(b) In my response to USPS/UPS-T1-3(c) I did not cite increases in presorting or drop-shipping of mail. However, I do confirm that increases in the presorting or drop-shipping of mail would have the effect of reducing FHP per RPW piece.

(c) I have no such quantitative evidence. However, I note that FHP measures mail coming into the plant, while TPH measures the amount of mail handling within the

plant. Every time a piece of mail generates an FHP count, it also by definition generates a TPH count. It may or may not subsequently generate additional TPH counts. My analysis shows that the relationship between FHP and TPH is not one of proportionality. Thus, any nonlinearity in the relationship between RPW volume and FHP volume is transmitted to the relationship between RPW volume and TPH, and probably amplified. Although I cannot exclude the logical possibility that a change in the relationship between RPW volume and FHP could generate an offsetting change in the relationship between RPW volume and the amount of subsequent handling mail experiences, I am unable to construct a plausible and relevant example in which such a situation occurs.

(d) See my response to USPS/UPS-T1-36(c).

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USPS/UPS-T1-37. Please refer to your responses to USPS/UPS-T1-5(c) and (d). The interrogatories asked you to explain how "increases in cost associated with growth in the number of addresses" are "causally attributable to a subclass of mail" as volume-variable (or marginal) cost (in USPS/UPS-T1-5(c)) and incremental cost (in USPS/UPS-T1-5(d)). Your response to USPS/UPS-T1-5(c) discusses the cost effects of "[a]ccommodating the volumes associated with such new delivery points" and states, "Costs associated with these modifications are causally related to the volume growth caused by the creation of new households and businesses." Your response to USPS/UPS-T1-5(d) reads, "See my response to part (c), above."

a. Please explain whether your response implies that you believe there are no cost consequences of growth in delivery points *independent* of any associated mail volumes.

b. Your response to USPS/UPS-T1-5(c) does not indicate how the "[c]osts associated with these modifications" are causally attributable to a subclass of mail as volume-variable (or marginal) cost. Please explain fully how, if at all, "[c]osts associated with these modifications" are causally attributable to a subclass of mail as volume-variable (or marginal) cost" as originally requested in interrogatory USPS/UPS-T1-5(c).

c. Your response to USPS/UPS-T1-5(d) does not indicate how the "[c]osts associated with these modifications" are causally attributable to a subclass of mail as incremental cost. Please explain fully how, if at all, "[c]osts associated with these

modifications" are causally attributable to a subclass of mail as incremental cost as originally requested in interrogatory USPS/UPS-T1-5(d).

d. If your response to part (a) indicates that you believe there are, or may be, cost consequences of growth in delivery points *independent* of any associated mail volumes, please explain fully how, if at all, such costs are causally attributable to a subclass of mail as volume-variable (or marginal) cost.

e. If your response to part (a) indicates that you believe there are, or may be, cost consequences of growth in delivery points *independent* of any associated mail volumes, please explain fully how, if at all, such costs are causally attributable to a subclass of mail as incremental cost.

Response to USPS/UPS-T1-37.

(a) In the hypothetical situation in which there was a new delivery point that never received any mail, there might be some minimal costs associated with the creation of that delivery point. However, I have to question whether this hypothetical situation in fact ever occurs, and whether it has any practical relevance.

(b) In principal, one could determine the subclass distribution of the costs of modifying the network to accommodate new delivery points by recording separately by subclass the first pieces delivered to new addresses and the subsequent pieces, and then regressing costs of the two different volume vectors. The estimated coefficients on first pieces delivered by subclass would give the required subclass specific costs.

(c) See my response to USPS/UPS-T1-37(b).

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(d) In the hypothetical situation of a delivery point that never generated any mail volume, it would not be possible to assign cost responsibility to individual mail subclasses. However, as I indicated in my response to USPS/UPS-T1-37(a), I question whether such situations actually occur.

(e) See my response to USPS/UPS-T1-37(d).

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USPS/UPS-T1-38. Please refer to your testimony at page 48, line 4, to page 52, line 13, where you address Mr. Degen's argument that the existence of setup and takedown costs explains, in part, less than 100 percent volume-variability factors. On page 48, lines 5-8, you state that "Over at least some range of volumes, Mr. Degen is almost certainly correct. For small increases in volume, these costs will remain fixed and with growth, they will be amortized over ever larger volumes, giving the result that such operations will exhibit economies of scale." With Figure 8, on page 51, you depict "a situation in which costs increase in a stepwise fashion in direct proportion to volume."

a. Please confirm that, for the purposes of discussing Figure 8, it is possible to define "volume" as piece handlings (TPH or TPF)—i.e., the need to perform more piece handlings could result in "replication of a mail processing operation" and thus the "cost-volume" pattern you depict in Figure 8. If you do not confirm, please explain.

b. Please explain whether you believe the "range of volumes" within which setup and takedown costs "will remain fixed" is larger or smaller than the range of TPH or TPF volumes in Dr. Bozzo's dataset. Please provide and describe fully any quantitative evidence you use to support your statement.

c. Please explain whether you believe Dr. Bozzo's models incorporate any constraint or other feature that would prevent the results from indicating 100 percent (or greater) variability of MODS pool costs with respect to piece handlings if your depiction in Figure 8 were correct. If you believe that there are such constraint(s) or other feature(s), please describe each one, provide detailed citations to the portion(s) of LR-1-107 that show its implementation, and demonstrate mathematically how it would prevent

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Dr. Bozzo's results from indicating 100 percent (or greater) variability of MODS pool costs with respect to piece handlings if your depiction in Figure 8 were correct.

d. Please explain whether you believe the "range of volumes" within which setup and takedown costs "will remain fixed" is larger or smaller than the range of volumes likely to result from projected volume changes between FY 1998 (the base year) and FY 2001 (the test year). Please provide and describe fully any quantitative evidence you use to support your statement.

Response to USPS/UPS-T1-38.

(a) Confirmed.

(b) The range of volumes within which setup and takedown costs will remain fixed is smaller than the range of TPH or TPF volumes in Dr. Bozzo's dataset. The evidence, which is discussed on page 52, lines 6-13, of my testimony, shows clearly that over the range of volumes in Dr. Bozzo's dataset, mail processing facilities incurred replication of setup and takedown costs.

In particular, Table 1 and Appendix B of my testimony present the number of machines per site for each PCN listed in the data provided by Dr. Bozzo in Library Reference USPS-LR-I-244. These data show that over the range of volumes between 1993 and 1998, facilities added a significant number of certain types of machines, some of which require setup and takedown costs.

A notable example in the list of equipment is the flat sorting machine. According to the testimony of Mr. Degen, flat sorting machines require setup costs. USPS T-16,

pages 42-43. The average number of flat sorting machines per facilities starts at 5.6 in 1993, and grows over the period covered by Dr. Bozzo's data to 11.3 machines per facility. UPS-T-1, Table 1, page 8. These data indicate that the flat sorting machines setup costs incurred by facilities in 1993 have not remained constant, but rather have more than doubled, over the time period and range of volumes in Dr. Bozzo's dataset.

(c) In general, I believe that a translog model, such as the one used by Dr. Bozzo, can yield 100 percent (or greater) variability. Whether Dr. Bozzo's model gives correct answers depends critically on the validity of the judgments on which his specification and estimation rely.

(d) The range of volumes within which setup and takedown costs will remain fixed will likely be smaller than the projected range of volumes between the base year and the test year. I base this judgment upon the change in machine counts observed in Dr. Bozzo's dataset, and the relationship between the length of the time period covered by his dataset, and the length of the interval between the base year and the test year.

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USPS/UPS-T1-39. Please refer to your testimony, UPS-T-1, from page 52, line 16, to page 53, line 11, where you discuss what you characterize as the "implicit assumption that incremental volume growth occurs in the shoulders of the peak." You state, "There is no evidence to suggest that in fact, incremental volume growth would occur only in the shoulders of the peak."

a. Please provide a detailed citation to the portion of Mr. Degen's testimony that states the assumption that "incremental volume growth would only occur in the shoulders of the peak." If you claim that your statement is not made explicitly but is a clear implication of Mr. Degen's testimony, please reconcile your interpretation with the qualifications he includes in his testimony such as those that you quote at lines 1-2 of page 53.

b. Does your statement at lines 7-8 that, "if all volumes grow proportionately...one would expect staffing levels to grow proportionately in response" implicitly assume constant returns to "scale" (or size, density, etc., as appropriate)? That is, would it be more accurate to say "if all volumes grow proportionately ... one would expect staffing levels to grow proportionately in response if there are constant returns to scale"? Please explain any negative answer.

c. Do you contend that some types of volume growth (e.g., growth in deferrable "non-pref" volumes) cannot be handled in off-peak periods? If so, please explain fully the basis for your contention.

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Response to USPS/UPS-T1-39.

(a) Mr. Degen explains that gateway operations require peak load staffing early in the day and late in the day to ensure that mail can flow quickly to outgoing sorting operations. In his operational analysis of the anticipated effects of increased volume on volume variability for the gateway operation cancellations, Mr. Degen says, "Increases in total collection volume that exhibit the current time distribution will not increase cancellation hours proportionately because the *full staffing early and late in the operation will not need to change*–some of the waiting time will simply be converted to processing time" (USPS-T-16, page 37, lines 20-24, emphasis added).

If Mr. Degen believes both that staffing is dictated by peak load volumes and that "full staffing early and late in the operation will not need to change" in response to increases in volume (USPS-T-16, page 37, lines 22-23), it must be the case that Mr. Degen assumes implicitly that incremental volume growth would occur not during the critical early and late periods, but rather in the shoulders of the peak.

(b) Mr. Degen uses his operational analysis that "full staffing early and late in the operation will not need to change" and that "some of the waiting time will simply be converted to processing time" to support Dr. Bozzo's estimated variabilities. Specifically, Mr. Degen says, "The estimated variability [for cancellation] may seem low, but it is wholly consistent with my operational analysis" (USPS-T-16, page 54, lines 10-11).

On page 53 of my testimony, I re-focus attention from the shoulders of the peak to the critical early and late periods – where volume growth should result in increased staffing needs. During these peak periods, Mr. Degen's rationale supporting Dr.

Bozzo's finding of increasing returns to scale is not defensible, as there is no idle waiting time that can be used to process incremental volume.

Thus, it would be accurate to say that if volume growth during the critical early and late periods were not to result in a proportionate growth in staffing, there would have to be a source of increasing returns to scale other than that identified by Mr. Degen.

(c) Yes, it is my contention that some types of volume growth cannot be handled in off-peak periods. Deferrable mail can, by definition, be deferred. However, not all mail is deferrable.

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USPS/UPS-T1-40. Please refer to your testimony, UPS-T-1, at page 53, lines 19-20. You state, "The need to make full use of downstream processing capacity implies that gateway staffing levels are in fact volume driven."

a. Does "volume driven" necessarily imply 100 percent volume-variability (i.e., is it necessary that there also be constant returns to "scale" for "volume driven" to imply "100 percent volume variability)? Please explain fully any affirmative answer.

b. Do you contend that Mr. Degen describes gateway operations as non-volume-variable, or just less than 100 percent volume-variable? If you contend that Mr. Degen describes gateway operations as non-volume-variable, please reconcile your contention with Mr. Degen's testimony, at page 38, lines 11-13 of USPS-T-16, that "The overall volume-variability of the cancellation operation will tend to be less than 100 percent because of its role as a gateway with varying vehicle arrival times and volumes of collection mail that cannot be forecast with certainty."

c. Please confirm that your shapes-level analysis of Dr. Bozzo's data relates, among other things, hours in upstream gateway operations such as OCR, to volumes in downstream sorting operations that process letter mail. If you do not confirm, please explain fully.

Response to USPS/UPS-T1-40.

(a) No, but the operational analysis cited from my testimony (UPS-T-1, page 53, lines 19-20) is consistent with 100 percent volume variability.

(b) Just less than 100 percent volume-variable.

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(c) Confirmed.

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USPS/UPS-T1-41. Please refer to your testimony at page 72, lines 19-21. You state, "if an analysis is conducted at the plant level, it should account explicitly for the effects of changes in the network that alter the number, configuration or operation characteristics of plants."

a. Please confirm that the "pool total costs" for MODS cost pools reported in Table 1 of witness Van-Ty-Smith's testimony, USPS-T-17, reflect the costs for all facilities that have the corresponding mail processing operations in place. If you do not confirm, please explain fully.

b. Please confirm that any net expansion or contraction of a MODS operation between (say) FY 1998 and FY 1999 will be reflected in the difference between FY 1998 and FY 1999 "pool total costs" as computed by witness Van-Ty-Smith. If you do not confirm, please explain.

c. Please confirm that, holding the volume-variability factors constant, the "pool volume-variable costs" as computed by witness Van-Ty-Smith (or witness Sellick in UPS-T-2) will change between (say) FY 1998 and FY 1999 by the same proportion as the "pool total costs" change. That is, for a constant cost elasticity or volume-variability factor ε_i:

$$\Delta VC_i / VC_i^{98} = (\varepsilon_i C_i^{99} - \varepsilon_i C_i^{98}) / \varepsilon_i C_i^{98} = (C_i^{99} - C_i^{98}) / C_i^{98} = \Delta C_i / C_i^{98}$$

If you do not confirm, please explain.

d. Please confirm that the Postal Service's rollforward model accounts for, among other things, the effects on the Postal Service's future costs of planned deployments of capital equipment between the base year and test year. If you do not confirm, please

explain your understanding of how the rollforward model treats planned deployments of capital equipment.

Response to USPS/UPS-T1-41.

(a) Confirmed.

(b) Confirmed. These pooled total costs are used along with estimates of volume variability to construct estimates of volume variable pooled total costs.

(c) Confirmed.

(d) I confirm that the Postal Service's rollforward model reflects future costs of planned deployments of capital equipment between the base year and the test year. However, to the extent that these deployments are a response to growth in volume, their costs should be reflected in the calculation of volume variability. The Postal Service's approach to measuring volume variability does not reflect these costs.

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USPS/UPS-T1-42. Please refer to your testimony at page 72, lines 9-10. Please confirm that, as a matter of economic theory, the "correct result" could be variabilities greater than, less than, or equal to 100 percent, depending on the degree of economies of "scale" (or size, density, etc., as appropriate) actually exhibited by mail processing operations.

Response to USPS/UPS-T1-42.

Confirmed.

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USPS/UPS-T1-43. Please refer to your discussion of your "shapes level" variability analysis at pages 57-59 of UPS-T-1, and the econometric results you present in Appendix F.

a. Please provide, using the method you describe at page 40 of UPS-T-1, a table of the marginal cost implied by your "letters" models for a BCS piece handling (TPH or TPF, as appropriate), an OCR piece handling, an LSM piece handling, and a manual letter piece handling. Please also provide the table in Excel spreadsheet format.

b. Please provide, using the method you describe at page 40 of UPS-T-1, a table of the marginal cost implied by your "flats" model for an FSM piece handling (TPH or TPF, as appropriate) and a manual flat piece handling. Please also provide the table in Excel spreadsheet format.

c. Please provide, using the method you describe at page 40 of UPS-T-1, a table of the marginal cost implied by your "parcels" model for a SPBS piece handling (TPH or TPF, as appropriate) and a manual parcel piece handling. Please also provide the table in Excel spreadsheet format.

d. Please confirm that your "parcels" group excludes the manual Priority Mail cost pool. If you do not confirm, please explain.

Response to USPS/UPS-T1-43.

(a) The shapes level variabilities can only be used to estimate shapes-level marginal costs. They cannot be used to infer MODS-level marginal costs. Thus, I provide the only possible calculation of marginal costs using the letters variability – the

marginal costs of letters. Column (1) of the attached "Table Prepared in Response to USPS/UPS-T1-43" presents estimated marginal costs for letter processing, using 1998 data and the method described on page 40 of my testimony.

(b) See my response to USPS/UPS-T1-43(a) above. Column (2) of the attached "Table Prepared in Response to USPS/UPS-T1-43" presents estimated marginal costs for flats processing, using 1998 data and the method described on page 40 of my testimony.

(c) See my response to USPS/UPS-T1-43(a) above. The attached "Table Prepared in Response to USPS/UPS-T1-43" presents estimated marginal costs for parcels processing, using 1998 data and the method described on page 40 of my testimony.

(d) Confirmed.

Table Prepared in Response to USPS/UPS-T1-43

Site Id	LETTERS (1)	FLATS (2)	PARCELS (3)
1	0.198	1.617	4.418
2	0.357		3.921
3	0.204	1.172	4.495
4	0.199	1.483	2.750
5	0.170	1.355	3.944
6	0.239	1.479	1.509
7	0.203	1.434	4.458
8	0.181	1.571	3.332
9		1.179	
10	0.179	1.251	4.170
11		1.793	4.912
12	0.187	1.155	1.837
13	0.185	1.354	2.618
14	0.123	1.109	4.490
15	0.190	1.436	
16	0.151	1.670	3.982
17			
18			
19	0.440	1.726	
20	0.199	1.439	4.173
21	0.207	1.174	3.166
22	0.315	1.685	3.077
23	0.292	1.952	3.480
24	0.224	1.521	3.176
25	0.153	1.450	4.287
26	0.155	1.308	2.847
27			
28	0.278	1.498	1.758
29	0.164	1.132	1.524
30		1.299	1.854
31	0.162		
32	0.173	1.475	
33			
34	0.612	1.411	
35	0.137		
36	0.283	1.138	5.055
37			
38	0.252	1.761	
39	0.186	1.264	2.230
40	0.129		
41			
42			
43	0.137		2.865
44			
45	0.646	2.350	
46	0.122	0.964	

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Table Prepared in Response to USPS/UPS-T1-43

Site Id	LETTERS (1)	FLATS (2)	PARCELS (3)
47	0.151		
48			3.404
49	0.156	1.772	1.651
50	0.228	1.255	2.287
51			
52	0.192	1.111	
53	0.191		2.318
54			
55	0.214	1.472	4.540
56			
57			
58	0.195	1.742	3.093
59	0.251	1.359	3.094
60		1.304	
61	0.172	1.614	2.708
62	0.152	1.283	3.483
63	0.172	1.263	
64			3.310
65	0.191	1.315	2.779
66	0.223	1.912	3.862
67	0.199	1.346	
68	0.241	1.225	1.327
69		1.443	
70	0.138	1.577	3.853
71	0.182	1.333	
72	0.219	1.689	3.380
73	0.397	1.802	3.305
74	0.178	1.619	5.685
75	0.161	1.454	1.662
76		1.866	3.940
77	0.159	1.507	3.845
78	0.249	1.676	5.715
79	0.239	1.517	3.579
80		1.070	5.590
81	0.169	1.432	3.102
82	0.212		3.361
83	0.187	1.629	7.444
84		1.085	2.351
85	0.166	1.282	
86			1.318
87			
88	0.117		
89		1.351	
90	0.150	1.240	6.833
91	0.167		
92	0.175	1.363	4.321

Table Prepared in Response to USPS/UPS-T1-43

Site Id	LETTERS (1)	FLATS (2)	PARCELS (3)
93	0.179	1.119	
94	0.263		2.754
95	0.107	1.035	
96		1.554	1.153
97	0.150	1.279	
98	0.171	1.337	7.541
99	0.143	1.196	3.648
100		1.276	
101	0.165		
102	0.146	1.250	1.524
103	0.156	1.230	
104	0.211		1.534
105	0.164	1.223	4.851
106	0.191	1.426	
107	0.151	1.566	3.235
108	0.199	1.351	
109	0.153	1.272	
110	0.160	1.257	
111	0.178	0.848	1.118
112	0.185	1.267	
113	0.156	0.981	1.332
114	0.163	1.211	3.498
115			2.592
116	0.176	1.512	
117			
118		1.363	2.223
119		1.350	2.259
120			3.810
121	0.198		1.384
122	0.169	1.135	1.975
123	0.147	1.006	1.987
124			
125	0.164	1.236	2.740
126			
127	0.122		
128			
129	0.176	1.451	3.217
130	0.144	1.404	
131	0.213	1.395	3.527
132	0.200	1.826	3.253
133			4.248
134	0.193	1.707	3.233
135	0.229	1.594	3.033
136	0.217	1.733	3.205
137	0.141	0.989	2.458
138	0.313	1.714	1.947

Table Prepared in Response to USPS/UPS-T1-43

Site Id	LETTERS (1)	FLATS (2)	PARCELS (3)
139	0.235	1.623	1.587
140	0.128	1.248	1.844
141	0.201	1.494	3.360
142			
143	0.200	1.477	2.001
144			
145	0.212	1.555	2.660
146	0.210	1.571	3.770
147	0.328	1.854	
148	0.186	1.265	2.829
149	0.164	1.301	4.597
150	0.265	1.765	3.256
151	0.216	1.856	
152	0.215	2.080	4.219
153	0.207	1.569	3.193
154	0.204	1.969	3.163
155	0.196		3.574
156	0.173	1.863	2.570
157	0.219	1.154	
158	0.187	1.133	
159	0.206	1.522	5.066
160	0.182	1.950	
161	0.153	0.999	
162	0.272	1.477	1.056
163	0.131	1.098	1.982
164	0.368	1.343	
165	0.141	1.057	
166	0.200	1.568	
167	0.200	1.389	1.884
168	0.302		1.493
169	0.216	1.236	2.064
170	0.172	1.379	
171	0.179	1.248	
172	0.188	1.486	3.052
173		2.101	
174	0.252	1.475	2.021
175	0.176	1.344	4.077
176	0.179	1.270	2.660
177			
178	0.181	1.303	
179	0.155	1.463	
180	0.182	1.719	0.902
181	0.194	1.353	1.888
182			
183	0.167	1.357	
184		1.314	2.345

Table Prepared in Response to USPS/UPS-T1-43

Site Id	LETTERS (1)	FLATS (2)	PARCELS (3)
185	0.213	1.575	
186	0.234	1.290	
187	0.190	1.531	
188	0.137	1.491	
189	0.175	1.363	
190	0.160	1.412	
191	0.290	1.181	
192	0.135	1.237	1.544
193	0.528	1.831	4.876
194	0.128	1.462	1.748
195	0.164	1.347	4.222
196			
197			
198	0.234	1.472	1.634
199	0.208	1.558	2.748
200	0.158	1.273	3.278
201	0.186	1.425	3.342
202	0.241	1.949	4.087
203	0.206	1.476	3.333
204	0.232	1.406	2.628
205	0.155	1.304	1.509
206	0.176	1.473	3.460
207	0.197	1.012	4.284
208	0.184	1.271	3.339
209	0.108	1.090	
210	0.160	1.598	2.434
211	0.173	1.673	
212	0.130	1.226	2.666
213	0.199	1.611	3.678
214	0.184	1.620	2.599
215	0.141	1.272	
216		1.297	3.349
217	0.233	1.692	3.634
218			
219		1.244	3.683
220	0.234	1.013	2.821
221		1.117	
222	0.236	1.235	2.948
223		1.147	
224	0.199	1.175	4.363
225	0.196	0.837	
226	0.193	1.194	1.563
227	0.152	1.179	1.108
228	0.126	1.176	
229		1.058	
230	0.201	1.458	

Table Prepared in Response to USPS/UPS-T1-43

Site Id	LETTERS (1)	FLATS (2)	PARCELS (3)
231			
232			
233	0.163	0.993	1.093
234	0.140	1.403	3.693
235	0.210	1.056	2.647
236	0.157		1.424
237	0.190	1.571	4.556
238	0.292	1.122	1.389
239		1.159	1.617
240		0.976	2.485
241		1.265	2.263
242	0.174	1.347	3.777
243	0.124	1.070	1.443
244	0.141		1.436
245	0.153	1.187	
246	0.303	0.961	
247	0.155	1.253	
248			
249	0.148	1.079	1.118
250			
251	0.219	1.051	1.402
252	0.157	1.366	
253	0.158		
254	0.164		1.094
255	0.141	1.357	3.663
256	0.176	1.109	
257		1.135	
258	0.103		14.968
259		1.160	3.689
260	0.203	1.283	1.708
261		1.136	
262	0.165	1.113	
263	0.187	1.298	4.936
264	0.122	1.125	
265	0.205	1.358	2.510
266			
267			
268	0.162	1.423	1.790
269	0.233	1.600	3.640
270	0.198	1.838	3.991
271	0.152	1.356	3.372
272	0.206	1.422	3.933
273	0.209	1.489	2.897
274	0.126	1.035	2.396
275	0.166	1.473	2.630
276	0.221	1.852	2.122

Table Prepared in Response to USPS/UPS-T1-43

Site Id	LETTERS (1)	FLATS (2)	PARCELS (3)
277	0.190	1.459	3.075
278	0.184	1.255	
279	0.101	1.015	2.621
280	0.121	1.389	2.622
281	0.154	1.171	2.695
282	0.258	1.692	4.366
283	0.217	1.291	2.697
284		1.216	3.601
285	0.177	1.118	
286	0.176	1.113	1.940
287	0.186	1.360	2.250
288		1.317	3.970
289	0.204	1.100	3.927
290	0.188	1.295	
291		1.066	2.658
292	0.136	1.110	3.006
293	0.145	1.086	1.924
294	0.134	1.057	2.363
295	0.124	1.432	
296	0.164	1.112	2.195
297	0.148		4.755
298	0.131	1.328	
299	0.154	1.213	
300	0.226	0.995	
301	0.122	0.983	1.559
302	0.112	0.903	1.360
303	0.110		
304	0.182	1.279	3.985
305	0.106		
306	0.134		
307	0.134	0.936	2.365
308	0.228	1.544	
309	0.147	0.989	10.215
310	0.258		
311	0.277	0.990	
312			
313	0.138		
314	0.198		
315	0.200	1.011	1.576
316			
317	0.221	0.934	
318	0.309		
319			
320			
321			

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-44. Please refer to your testimony, UPS-T-1, at page 30, lines 17-22, where you discuss the use of cubic foot-miles as the "cost driver" for purchased highway transportation.

a. Is it your opinion that cubic foot-miles is an appropriate choice of cost driver for purchased highway transportation. If not, please explain.

b. Please refer to your statement, "To measure the contribution of a particular subclass to purchased highway transportation costs, all one need know is the number of cubic foot-miles." Does the quoted statement indicate your beliefs regarding the appropriate method to develop volume-variable cost by subclass for purchased highway transportation? If not, please explain.

Response to USPS/UPS-T1-44.

(a) Given the presently available data and analytical capability, it is an appropriate cost driver.

(b) In this portion of my testimony, I used this example to illustrate the characteristics and underlying assumptions of the cost driver/distribution key method of attributing cost. I did not intend to comment on how one should measure volume variability for purchased highway transportation. However, as I stated above in my response to USPS/UPS-T1-44(a), I believe that given the presently available data and analytical capability, cubic foot miles is an appropriate cost driver.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-45. Please refer to your response to USPS/UPS-T1-9(c).

a. In your response, you state, "The other logical place where the commingled data could have appeared - namely, the SPBS TPH/F data series – held positive values. I assumed that this represented the commingled manual parcel and SPBS data, and that still seems to be the most likely situation." You further state, "I cannot exclude the possibility that the numbers shown as SPBS TPH/F for periods 294 through 295 in site #6 actually represent something completely different..."

   i. Can you "exclude the possibility" that "the numbers shown as SPBS TPH/F" for site #6 represent the machine counts of pieces handled on the SPBS equipment at that site? If so, on what basis?

   ii. If the "numbers shown as SPBS TPH/F" for site #6 represent the machine counts of pieces handled on the SPBS equipment at that site, would that situation be consistent with MODS TPH and TPF recording procedures for mechanized and automated sorting operations, as you understand them? If not, please explain your understanding of MODS TPH and TPF recording procedures for mechanized and automated sorting operations.

   iii. If the "numbers shown as SPBS TPH/F" for site #6 represent the machine counts of pieces handled on the SPBS equipment at that site, would the SPBS TPH/F data for that site be erroneous? Please explain any affirmative answer.

   iv. Can you "exclude the possibility" that, in the periods where zero manual parcel TPH were recorded at site #6, the site simply did not report manual parcel piece handlings anywhere? If so, on what basis?

b. In your response, you state, "if all parcels were processed together in the SPBS operation, as the TPH data suggests, they would all by definition be SPBS parcels, and it would not make sense to talk of 'commingling' manual parcels and SPBS parcels in SPBS operations." Does this statement imply that you believe that Dr. Bozzo "talk[ed] of 'commingling' manual parcels and SPBS parcels in SPBS operations"? If so, please reconcile your belief with Dr. Bozzo's response to UPS counsel at Tr. 15/6431, lines 2-5, in which he states that the site, "had handled manual and SPBS parcels together up to a point *prior to separating them according to the mail processing technology that was used to sort them*" [emphasis added]. If not, what is the meaning of this statement?

Response to USPS/UPS-T1-45.

(a)(i) I suppose anything is possible. However, if it is the case that the numbers shown as SPBS TPH/F for site #6 for the periods 294 to 295 represent machine counts of the pieces handled on SPBS equipment, I have difficulty understanding Dr. Bozzo's response to UPS/USPS-T15-13. He states in that response that "intermittent reporting of manual parcel piece handlings may reflect periods in which manual and SPBS parcels were commingled."

As I explained in my response to USPS/UPS-T1-9, the use of the term "commingled" implies to me that the two parcel streams were somehow combined. As I also explained in my response to USPS/UPS-T1-9, the fact that there are hours recorded for site #6 for the periods 294 to 295 for both manual parcels and SPBS

indicates to me that during the period in question both operations were up and running separately in site #6. In that case, I interpret the use of the term commingled to mean that the TPH/F data for the two operations were somehow commingled. This interpretation is the basis for my written testimony.

A second logical possibility is that during the period in question all parcels processed by site #6 were processed on SPBS equipment, and that the recorded figures for SPBS TPH/F are the accurate machine counts. This interpretation would be consistent with Dr. Bozzo's use of the term "commingled," and moreover would be consistent with his response to questioning by counsel for UPS as recorded at Tr. 15/6431, lines 2-5. In this case, however, we confront another unsolved mystery: what do the hours recorded for manual parcels signify? Do they represent hours that should have been logged into the SPBS pool? Or are they something else? If so, what?

A third logical possibility is that during the period in question in site #6 both operations were up and running, and that the figures shown for manual parcel and SPBS hours and for SPBS TPH/F are all accurately recorded. In this case, the zeros shown for manual parcel TPH represent missing values. I will readily admit that this is a logical possibility. If, however, this is what was really going on, I am completely baffled by Dr. Bozzo's use of the term "commingled" in his response to UPS/USPS-T15-13. In this situation, nothing is commingled; there are simply some missing values. The Postal Service apparently disagrees with my interpretation of what was going on in site #6 during the period from 294 to 295. After receiving the interrogatories on this issue, I

have reviewed carefully both the available evidence and my reasoning based upon it. However, after doing so, I return to my original conclusion.

I note that under any of the scenarios outlined above, there are gross errors in the manual parcel data for site #6.

(ii) Yes.

(iii) No.

(iv) See my response to USPS/UPS-T1-45(a)(i).

(b) No. See my response to USPS/UPS-T1-45(a)(i). As I state there, I believe that the fact that hours are recorded separately for manual parcels and SPBS operations indicates that both were up and running in site #6 for the period in question.

As I stated in my response to USPS/UPS-T1-9, I believe that this statement is a response to a question posed by counsel for UPS about the handling of manual parcels and SPBS parcels together in the same operation.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-46. Please refer to your response to USPS/UPS-T1-10(b). You indicate that the results reported in the Table Prepared in Response to USPS/UPS-T1-10(b) "suggest that the MODS data series for SPBS and Manual Parcels exhibit gross data errors that exceed acceptable levels, as defined by Dr. Bozzo himself in USPS-T-15."

a. Please confirm that the error rate per your calculations reported in the Table Prepared in Response to USPS/UPS-T1-10(b) for SPBS is 8.45 percent. If you do not confirm, please explain.

b. Please confirm that the error rate per Dr. Bozzo's calculations reported in the Table Prepared in Response to USPS/UPS-T1-10(b) for SPBS is 1.38 percent. If you do not confirm, please explain.

c. Please confirm that the error rates for SPBS both in parts (a) and (b) are within the range of error rates for "routine data," as the term is used in USPS-T-15 at page 106, line 4. If you do not confirm, please explain.

d. Please confirm that, in the statement from your response to USPS/UPS-T1-10(b) quoted above, you meant to refer to the manual Priority Mail series, not SPBS. If you do not confirm, please explain.

Response to USPS/UPS-T1-46.

(a) Confirmed.

(b) Confirmed.

(c) Confirmed.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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(d) The error rate shown for SPBS in my response to USPS/UPS-T1-10(b) exceed the threshold for "average quality" data as specified by Dr. Bozzo in USPS-T-15, page 106, line 5. It does, however, fall within the range for "routine data" cited on page 106, line 4, of Dr. Bozzo's testimony. On page 106, lines 10-11, Dr. Bozzo characterizes the MODS data as being of "approximately average quality," leading me to believe that he was applying the former standard, and not the latter. My response to USPS/UPS-T1-10(b) reflects this belief.

In my response to USPS/UPS-T1-10(b), I may have misspoken when I used the term "acceptable levels" to characterize Dr. Bozzo's testimony on page 106, lines 10-11. Dr. Bozzo uses the data for manual parcels and Priority Mail even though error rates for these groups fail even to reach the standards of "routine data."

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-47. Please refer to your response to USPS/UPS-T1-11(b), the data you provided in UPS-LR-3, and the file volume.xls, provided in your workpapers, UPS-Neels-WP-1.

a. Please confirm that the volume.xls file contains data for FY1979 and FY1980. If you do not confirm, please explain fully.

b. Please confirm that you excluded the FY1979 and FY1980 data in the volume.xls file *from the aggregate time series analysis you present in UPS-T-1. If you do not* confirm, please explain fuiiy.

c. With respect to your response to USPS/UPS-T1-11(b), did you exclude the FY1979 and FY1980 data on *a priori* grounds, on the basis of some preliminary analysis you performed, or for some other reason(s)?

d. If your response to part (b) indicates that you excluded the FY1979 and FY1980 data on *a priori* grounds, please state fully the *a priori* grounds that led you to exclude the FY1979 and FY1980 data.

e. If your response to part (b) indicates that you excluded the FY1979 and FY1980 data on the basis of some preliminary analysis you performed, please describe fully and provide the analysis, and indicate in detail how the results of the analysis led you to exclude the FY1979 and FY1980 data.

f. If your response to part (b) indicates that you excluded the FY1979 and FY1980 data for some other reason(s), please state fully all reason(s).

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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Response to USPS/UPS-T1-47.

(a) Confirmed.

(b) Confirmed.

(c) I excluded the FY1979 and FY1980 data because of concerns about the reliability of the worksharing data for those years, and not on the basis of some preliminary analysis.

(d) Library Reference USPS-LR-I-117 did not contain worksharing volumes for FY1979 and FY1980 for some worksharing categories (specifically, First Class Carrier Route and Standard A 3/5-Digit). It was unclear to me whether these represented true zeros or missing values. Given this uncertainty, it seemed the safer course to exclude them from the analysis.

(e) Not applicable.

(f) Not applicable.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-48. Please refer to your response to USPS/UPS-T1-14(a). You state, "Several changes in the definition [of cost segment 3.1] have occurred. Because they do not appear to be of a significant nature, I have not accounted explicitly for these changes."

a. Please confirm that you did not conduct any alternative analysis to determine whether the changes in the definition of cost segment 3.1 are "of a significant nature" with respect to your aggregate time series analysis. If you do not confirm, please explain why you did not describe the analysis in your response to USPS/UPS-T1-11(b).

b. Please confirm that in the FY 1997 and FY 1998 CRAs (computed using the Postal Service's method), the Postal Service included the so-called "migrated" costs in the cost segment 3.1 total. If you do not confirm, please explain.

c. Please confirm that in the FY 1997 and FY 1998 CRAs (computed using the Commission's method), the cost segment 3.1 total is based on essentially the same IOCS-based method as in the previous years. If you do not confirm, please explain.

d. Please confirm that the cost segment 3.1 total in the FY 1997 CRA, using the Commission's method, is $13,147,837,000. If you do not confirm, please provide the figure you believe to be correct, and a detailed citation to its source.

e. Please confirm that the cost segment 3.1 total in the FY 1998 CRA, using the Commission's method, is $13,378,733,000. If you do not confirm, please provide the figure you believe to be correct, and a detailed citation to its source.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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Response to USPS/UPS-T1-48.

(a) The ambiguity of the term "alternative analysis" makes it difficult for me to answer this interrogatory. As I stated in my response to USPS/UPS-T1-14(a), I reviewed the changes that have occurred in the definition of cost segment 3.1 and decided that for purposes of measuring system wide volume variability, they did not appear to be significant. Arguably, this review constitutes an "analysis." If the interrogatory is directed at alternative *econometric* analyses, I ~~note~~ that as I describe in my testimony on page 67, I have run a number of different econometric analyses using different definitions of the dependent variable. For these reasons, I must answer not confirmed. The reason why I did not describe these "alternative analyses" in my response to USPS/UPS-T1-11(b) was that I had described the use of the different definitions of the dependent variable in my response to USPS/UPS-T1-11(a), and USPS-UPS-T1-11(b) asked about alternatives to the models described in my response to USPS/UPS-T1-11(a).

(b) Confirmed.

(c) Confirmed that the total 3.1 dollar amount is from the IOCS total.

(d) Confirmed.

(e) Confirmed.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-49. Please refer to your response to USPS/UPS-T1-15(b). You cite material at page 40 of USPS-T-15 to support your claim that Dr. Bozzo argues that "the capital intensity of mail processing is unaffected by growth in mail volume."

a. Please confirm that the material you quote from page 40 is, specifically, from lines 12-13. If you do not confirm, please explain.

b. Please confirm that the entire sentence, including the material you cite, reads, "Homotheticity implies that changing the level of output of the operation will not alter relative factor demands such as the capital/labor ratio, in equilibrium (and other things equal)." If you do not confirm, please explain.

c. Please confirm that the sentence preceding the material you quote from page 40 reads, "In fact, the capital and labor variabilities will be identical, in equilibrium, under the assumption that the cost pool-level production (or cost) functions are *homothetic*" [emphasis in original].

d. Please confirm that the material you cite from page 40 discusses the assumptions required to equate capital and labor variabilities at the cost pool level. If you do not confirm, please explain.

Response to USPS/UPS-T1-49.

(a) Confirmed.

(b) Confirmed.

(c) Confirmed.

(d) Confirmed.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
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USPS/UPS-T1-50. Please refer to your response to USPS/UPS-T1-17(c). You indicate that you used data from reg9398.xls to obtain the FY98 MODS hours you use to construct the labor weights for your aggregate volume index, and as a result the reliability of your time series analysis depends in part on the assumption that the labor weights "based on these direct MODS pools reflect the distribution of volume by class in indirect MODS pools and in other parts of the mail processing system..."

a. When you reviewed the available data sources for your analysis, were you aware that FY98 MODS workhours by cost pool, for every MODS cost pool, as well as total BMC and non-MODS workhours from the Pay Data System, are provided at pages I-7 to I-28 of USPS-LR-I-106?

b. If your response to part (a) indicates that you were aware of the data in USPS-LR-I-106, please explain why you chose not to use those data.

Response to USPS/UPS-T1-50.

(a) No.

(b) Not applicable.

CHAIRMAN GLEIMAN: Is there any additional written cross examination for this witness?

MS. DUCHEK: Yes, Mr. Chairman. The Postal Service has some.

CHAIRMAN GLEIMAN: Ms. Duchek, if you would like to approach the witness.

CROSS EXAMINATION

BY MS. DUCHEK:

Q Good morning, Dr. Neels.

A Good morning.

Q I have handed you two copies of your responses to USPS/UPS-T1-52 and -52.

Have you had an opportunity to examine those?

A I have.

Q And would those still be your answers today?

A They would.

Q Mr. Chairman, I am going to hand the reporter two copies of USPS/UPS-T1-51 and -52 and ask that they be entered into evidence.

CHAIRMAN GLEIMAN: I will direct -- if you would please provide those copies to the court reporter, I will direct that the material be received into evidence and transcribed into the record.

[Additional Designated Written Cross-Examination of Kevin Neels,

USPS/UPS-T1-51 and USPS/UPS-T1-52 and Witness Neels' Responses, were received into evidence and transcribed into the record.]

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
TO INTERROGATORY OF THE UNITED STATES POSTAL SERVICE

USPS/UPS-T1-51. Please refer to your response to USPS/UPS-T1-30. In your response, you do not confirm that the between estimator will be inconsistent "in the case of IID (i.e., identically and independently distributed) measurement error." You further state, "the averaging across time periods that the between model is based upon would tend to reduce the variance of the measurement error, with a resulting loss in bias."

a. Please confirm that, in the case of IID measurement error (with positive error variance), the averaged measurement error has positive variance. If you do not confirm, please explain.

b. Please confirm that, since the averaged measurement error has positive variance in the case of IID measurement error, the between estimator is inconsistent in the case of IID measurement error. If you do not confirm, please explain.

c. Please confirm that it would be incorrect to interpret your usage of the term "loss in bias" to mean that the between estimator completely eliminates inconsistency due to measurement error. If you do not confirm, please explain.

Response to USPS/UPS-T1-51.

(a) Confirmed.

(b) Confirmed.

(c) Confirmed.

ANSWER OF UNITED PARCEL SERVICE WITNESS NEELS
TO INTERROGATORY OF THE UNITED STATES POSTAL SERVICE

USPS/UPS-T1-52. Please refer to your response to USPS/UPS-T1-33(d). Please provide equations for the "correct 'non-reverse' regressions... implicitly defined by the regression models on page 35, lines 3 and 7" of UPS-T-1. Please also describe your derivation of the equations you provide.

Response to USPS/UPS-T1-52.

The regression models from page 35, lines 3 and 5 of UPS-T-1, shown below, present FHP as a function of TPH and parameters α and β:

(line 3)

$$\ln(FHP_{it}) = \alpha_i + \beta_1 \ln(TPH / F_{it}) + \beta_2 \ln(TPH / F_{it})^2 + \beta_3 \ln(DPT_{it}) + \beta_4 TimeDummies_{it} + u_{it}$$

(line 5) $\ln(FHP_{it}) = \alpha_i + \beta_1 \ln(TPH / F_{it}) + \beta_2 \ln(TPH / F_{it})^2 + u_{it}$.

USPS-UPS-T1-33 and USPS-UPS-T1-52 both ask for an explicit expression of TPH as a function of FHP. However, because of the use of the log transformation and the polynomial functional form, it is generally mathematically impossible to write TPH as an explicit function of FHP.[1]

As I explained in my response to USPS-UPS-T1-33, the models used here *implicitly* define the reverse regression models of TPH as a function of FHP. The existence of the implicit function is guaranteed under the regularity conditions of the

1. There is only one condition on the model under which a singular root exists. However, there is no reason to expect that this condition holds, and thus the quadratic form that implicitly defines TPH as a function of FHP has multiple solutions.

implicit function theorem (see Alpha C. Chiang, Fundamental Methods of Mathematical Economics (New York: McGraw-Hill Book Company, 1984, pp. 205-206).

Furthermore, we can totally differentiate the implicit function relating lnTPH to lnFHP in order to obtain $\frac{d \ln TPH}{d \ln FHP}$. Consider for example the implicit function F for model (3):

$$F(FHP, TPH, X) \equiv \ln(FHP_{it}) - (\alpha_i + \beta_1 \ln(THP / F_{it}) + \beta_2 \ln(TPH / F_{it})^2 + X) = 0$$

where $X = -(\beta_3 \ln(DPT_{it}) + \beta_4 TimeDummies_{it} + u_{it})$. Allowing FHP and TPH to vary, holding all else equal, we can write: $dF_{\ln TPH} d \ln TPH + dF_{\ln FHP} d \ln FHP = 0$. Solving for $\frac{d \ln TPH}{d \ln FHP}$, gives $\frac{d \ln TPH}{d \ln FHP} = \frac{1}{\beta_1 + 2\beta_2 \ln TPH}$ - which is exactly the inverse of the marginal effect of TPH on FHP from the regression of FHP on TPH calculated and presented in UPS-T-1.

CHAIRMAN GLEIMAN: Is there any other additional written cross examination for the witness?

If not, that brings us to oral cross examination.

Two parties have requested oral cross examination, the United States Postal Service and a joint request by eight participants including the Alliance of Nonprofit Mailers, American Business Press, Coalition of Religious Press Associations, Dow Jones & Company, Magazine Publishers of America, National Newspaper Association, the McGraw Hill Companies, and Time Warner.

Is there anyone else who wishes to cross examine?

[No response.]

CHAIRMAN GLEIMAN: Just let me comment that it is very helpful when parties with similar interests make combined presentations. It obviously saves time and money for everyone, and I want to assure the joint participants that the Commission will give their concerns as much weight when presented jointly as we would if there were eight separate attorneys up here plowing through the same grounds during cross examination.

Who will be conducting cross examination for the joint parties?

MR. McBRIDE: Good morning, Mr. Chairman. My name is Michael F. McBride, attorney for Dow Jones & Company, Inc. I will be conducting the cross examination.

CHAIRMAN GLEIMAN: Mr. McBride, if you would like to proceed, you may.

MR. McBRIDE: Thank you.

CROSS EXAMINATION

BY MR. McBRIDE:

Q Good morning, Dr. Neels.

A Good morning.

Q I believe we met three years ago.

A I believe you're right.

Q Nice to see you again.

I was looking through your CV, Dr. Neels, and it appears as if you have testified as an expert witness or otherwise written papers on other matters on a fairly wide variety of industries, is that correct, sir?

A That is correct.

Q Including in the energy industry?

A That is correct.

Q I would like to see if we could agree on some terminology, so what I would like to do is first draw an analogy to another industry and see if we are on common ground at least in our terminology before we turn to mail processing costs.

For that purpose, if it is agreeable with you, I would like to use the example of a large coal-fired electric utility generating station.

Are you familiar generally with that sort of a facility?

A Generally, yes.

Q All right. I would like you to assume this large coal-fired electric generating station is obviously something in which there is a substantial amount of capital invested. Is that a reasonable assumption?

A That is a fair assumption.

Q And a capacity factor of 50 percent. Do you understand what I mean by that terminology?

A I am not sure that I do.

Q That the plant is generating over the course of a year 50 percent of the calculated maximum amount of capacity it is capable of producing.

A I understand you.

Q All right, and that the plant has, let's say, 100 employees. Is that fair?

A Okay.

Q All right. Now would you assume that variable costs of generating electricity from that plant are less than 100 percent, equal to 100 percent, or greater than 100 percent?

A The -- can I ask, just to make sure we are on the same page in terms of definitions, when you talk about the percentage, you are denominator includes what categories of

costs?

Q The plant capital costs, if you will, the costs of the coal, and the costs of the employees and any other costs that are required to generate electricity from the plant.

A So full economic costs?

Q Correct.

A Okay, and the numerator in this case would be defined how?

Q Well, we are talking about the production from the plant, that is, the kilowatt hours or megawatt hours.

A Okay. Well, that would be denominated in kilowatt hours rather than in dollars.

Q All right. So now how would you characterize the numerator in order to answer my question about the variable costs?

A Well, I mean if you are talking about percentages that implies that the numerator has to be denominated in monetary terms and I presume what you would be talking about in this case would be analogous to the percent variability numbers that are being discussed in this proceeding, so it would be the portion of the costs that vary with output and that are not fixed. Is that a fair statement of it?

Q Fair statement.

A Okay.

Q So what is the answer to my question? Would you

expect the percentage of costs that are variable to produce kilowatt hours to be less than, equal to, or greater than 100 percent?

A And the premise is that the plant is currently operating at 50 percent of capacity?

Q That's correct.

A Then I would expect that the variable costs would be something less than 100 percent.

Q All right, sir. Now let's assume that the plant increases output and the capacity factor goes to 55 percent.

Would you expect that the per unit variable cost would be less than, equal to, or greater than the percentage that you just identified, that is a percentage less than 100 percent?

A The per unit variable cost? Are you asking whether the per cent -- the variable cost over total cost would increase, that percentage would increase?

Q Increase, stay the same, or decrease, as the plant increased its output from 50 to 55 percent?

A I would expect that they would increase.

Q They would increase?

A Increase.

Q So you think that as the production from the plant increases the amount of cost that is variable per unit is going to increase?

A From my understanding of coal-fired electric generating plants, those are typically increasing cost units, so the cost of an incremental amount of electricity is increasing as output increases.

Q So in your view, as you increase the output from the coal-fired plant that we have been discussing, there are diseconomies of scale? Is that a fair statement?

A There are increasing marginal costs. On the other hand, there is a portion of fixed costs which probably doesn't vary greatly with output. Now the fact that the -- I think I would characterize the plant as having economies of scale if the percent variability as we have defined it is less than 100 percent, so you could have a situation in which there are increasing marginal costs and hence the variable costs are increasing as output increases, but there's still less than 100 percent, so I think that the two statements are not inconsistent.

Q All right. Please define then for me, if you would, what an economy of scale is and a diseconomy of scale is.

A Well, economies of scale are -- there could be, as I indicated in my last answer, I think you could potentially think about two different ways of looking at it. One question, one way of looking at would be to say, is the marginal cost of -- is marginal cost increasing or

decreasing?

Now, some people would say if marginal cost is increasing, then there are diseconomies of scale. On the other hand, if there are fixed costs that are being spread over a larger base of output such that average cost is declining still as output is increasing, you might also -- you might characterize that as ~~dis~~economies of scale. So, I think it depends upon your definition.

Q Which is your definition?

A I think for most purposes, I tend to regard a situation in which there are increasing marginal costs as one -- well, let me take it back. I think I would adopt a second one as my definition. In other words, if there are fixed costs -- if average cost is declining, then I there are economies of scale. When average cost begins to increase, I would say that there are diseconomies of scale.

Q All right. Now, let's talk still about this electric utility plant. You and I would agree, would we not, that in at least the typical instance, there would be substantial fixed costs?

A Yes.

Q And, therefore, if variable costs are less than 100 percent, if I understand the definition of economies of scale that you just chose, would you characterize the situation that I have hypothesized as one in which there are

returns of scale?

A I would characterize the one you just -- I would characterize the situation you described as one in which, according to my definition, there are economies of scale.

Q Economies.

A Because you would still be at the point where average cost -- on the cost curve, where average cost is declining.

Q But I thought you told me a few minutes ago that you thought there were diseconomies of scale at that plant?

A Well, and I think I clarified that by saying that there were two -- there were alternative definitions people could adopt. I think in the last question, you know, your premise for this line of questioning was we wanted to be on the same page in terms of terms.

Q Right.

A And I think we agreed on the definition of what constitutes economies of scale. And I think I then responded using that set of criteria. In your situation, there still is declining average cost, and so there are economies of scale.

Q Okay. So, if we then are in agreement that where there are substantial fixed costs, and there are, therefore, declining costs of production as production increases, we are in agreement that we can call that a situation in which

there are economies of scale?

A Yes.

Q All right. Now, do you believe that there -- well, let me first ask you this. Turn to another industry. Would you agree with me that there are a small number of automobile manufacturers that account for a large percentage of U.S. production and sales?

A That's correct.

Q Would you agree that a small number of firms with blast furnaces and steel mills account for a large percentage of U.S. production and sales?

A I would agree with that.

Q And would the same be true, that there are a small number of food canners that account for a large production of U.S. production and sales?

A That I am not certain of.

Q All right. Can you think of manufacturing industry where smaller firms seem to have a cost advantage over larger firms?

A Well, I note that, if you looked at the baked goods industry, there are some large producers. There are still a very large number of small producers that seem to, you know, persist and to prosper. So I would say that at least for certain segments of the baked goods market, small firms seem to have some advantage.

Q Is the only one that comes to mind?

A I would have to think about that. I mean I tend to -- in the industries that I tend to have focused on in my work, it is probably more common to see a situation in which there are a relatively small number of firms. Looking at -- you know, at this point, I am going beyond my own work and thinking about what I know in the business press. I noticed that there are still a large number of manufacturers of personal computers that still remain in business. That remains a somewhat fragmented market.

If I think about my experience in the grocery store, there is a lot of different companies putting canned goods on the shelves. That suggests that there might be a lot of firms doing that as well, but I haven't done detailed studies of those industries.

Q I am looking at some U.S. Census Bureau data. Would you regard that as a reliable source of information?

A Yes.

Q And the data for the baked goods industry, their item number 2051, seems to indicate that there are eight companies that make up 49 percent of the production in the industry. Does that sound about right to you?

MR. McKEEVER: Mr. Chairman, I might note that this material was not supplied in advance. I don't know where Mr. McBride is going with it, but it would have been

helpful, I think, if it had been supplied in advance.

MR. McBRIDE: Well, I didn't know he was going to choose the baked goods industry, so I don't know how I could have provided it in advance.

MR. McKEEVER: It is the U.S. Census document that counsel obviously had prepared that he didn't provide in advance.

CHAIRMAN GLEIMAN: I don't see that there is an outstanding objection.

MR. McKEEVER: No, there isn't.

CHAIRMAN GLEIMAN: But we note your concern about the practice. So we can get on with the cross-examination at this point in time.

MR. McBRIDE: Certainly.

BY MR. McBRIDE:

Q Let me ask you this, Dr. Neels, is it your testimony that there are fixed costs in the Postal Service, or are there not?

A My understanding --

MR. McKEEVER: Mr. Chairman, I take it that the question is not limited to mail processing?

MR. McBRIDE: That's correct.

MR. McKEEVER: We may be beyond the scope of the witness' testimony here, but I will not object at this point in time.

THE WITNESS: My understanding is that there are fixed costs in the Postal Service's operations.

BY MR. McBRIDE:

Q Now, let's confine the question, as your counsel suggests, just to mail processing operations. Are there fixed costs in Postal Service mail processing operations?

A Are we talking about the labor costs, or the full costs as we defined them in connection with the coal-fired utility plant?

Q Full costs.

A Full costs. I have -- my work has concentrated on labor costs, so I am not in the position to talk very knowledgeably about the non-labor portion. In the labor portion, I don't believe, based on my own investigations, that there are fixed costs.

In the capital area, I have found some results that suggest that it is possible there may not be fixed costs, but I haven't done a detailed study that would really lead me to a firm conclusion.

Q All right. Is it your testimony that there are diseconomies of scale in mail processing operations?

A My results suggest that there may be, but I have not offered that as an opinion. My testimony at this point is that mail processing costs are 100 percent volume variable, even though, as a number of my statistical results

suggest, you know, it is possible that there may be some diseconomies of scale.

Q Since you say it is possible there are diseconomies of scale, could you explain in plain English, for those of us who are not econometricians, why you think that could possible be true?

A Well, I -- probably the simplest way to explain is that, you know, as I have indicated in my written testimony, I tried to step back and just take a very simple look at what has happened over time. You know, looking at mail processing costs over a 20 year period, relating it to volume after adjusting for changes in worksharing, I looked to see whether labor costs have been increasing more or less rapidly than volume.

Now, it is a very simple model, but it does go directly to the question at issue. And if there were economies of scale, I would have expected to see labor costs growing less rapidly, but, in fact, they seem to be keeping pace with volume or even outpacing volume, depending upon how you set up the analysis.

So, if you look at it, there just -- we don't seem to have a situation where labor costs have been lagging behind volume growth. Now, the operational basis for that, I couldn't describe, but that is what, at a high level, the evidence seems to suggest.

Q All right. Picking up on that point you just made, that on an operational basis, you couldn't describe that, are you testifying that there may be diseconomies of scale because of something you have observed in the real world, or simply that you think that could be true because of numbers that some costing model produced that seemed to show that?

MR. McKEEVER: Objection, Mr. Chairman. I think the assumption in the question that numbers aren't in the real world is an incorrect one.

MR. McBRIDE: Maybe we could find out if the witness understood the question. I am asking if it is something he observed or that was produced by some model.

MR. McKEEVER: I have no objection with the deletion of the term "in the real world" for one option and not for the other. Which I believe counsel just did ask that question.

CHAIRMAN GLEIMAN: In that case, if -- do you still have the question, or would you like the question restated, Dr. Neels?

THE WITNESS: I think I have it. I think -- I have had some opportunities to observe mail processing plants, not as extensive as other witnesses in this proceeding. In trying to look at operations and how mail processing is organized, and to understand from that how you

might have diseconomies of scale, I am somewhat reliant on the testimony of Witness Degen, who presents an operational analysis of mail processing.

I think as part of my testimony, I took a careful look at some of his arguments as to why there should be economies of scale, and I explained reasons why they might be unconvincing. That, for example, he talks about the economies of scale that come from the fact you have set-u and takedown times for a particular piece of mail processing machinery. And I note that it seems to be the case that there are multiple pieces of machinery in a mail processing plant, and one possible explanation for that is that, as volume increases, the number of machines increases proportionately. And so, over large increases of volume, you get direct proportionately of costs.

Some of the other arguments for ~~dis~~economies of scale, I think also have some flaws, or at least can be called into question. So, I think I can answer your question in part by saying that I don't find some of the arguments, the operational arguments that have been put forward for the presence of economies of scale, to be convincing.

Now, could I go further to say that this pushes it in the direction of diseconomies of scale? I haven't tried to extend my analysis of these operational arguments that

far, and that is part of the reason why I am not really prepared to argue at this point that there are diseconomies of scale. I think I said that the opinion I was comfortable with is to say that there are -- that mail processing costs are 100 percent volume variable. And, in part, it is because I can't supply that other part of the argument.

MR. McBRIDE: Thank you, Mr. Chairman.

For now I think at least we will rest there.

CHAIRMAN GLEIMAN: Postal Service? Ms. Duchek.

MS. DUCHEK: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MS. DUCHEK:

Q Dr. Neels, would you please turn to page 56 of your testimony.

A I have it.

Q I think that is the page on which you discuss your alternative calculations of mail processing volume variability, and if you will bear with me, I am going to summarize them and see if you agree with my summary.

It seems to me you did three things.

Number one, you performed a shape level analysis, is that correct?

A That is correct.

Q And second, you looked at an analysis of the relationship between TPH or TPF, as appropriate, and FHP, is

that correct?

A That is correct.

Q And I think throughout I probably, to make things simpler, will refer to TPH and I think you would understand that I -- in some instances that means TPF.

A That is a useful shorthand.

Q Thank you. It is for me too.

Third, you did what I will term an aggregate time series analysis. Is that also correct?

A That is correct.

Q And on page 56 at lines 22 and 23, you indicate that each leads to variabilities much closer to 100 percent and often in excess of that level, is that correct?

A That is correct.

Q I would like first to look at your shape level analysis. Would you look at Table 8 on page 60 of your testimony, please.

A Okay. I have that.

Q And the estimated variability with respect to TPH from the letters model in that table is .663, correct?

A That is correct.

Q And the standard error is .023, correct?

A Correct.

Q Is the difference between the .663 letters variability in that table and 100 percent statistically

significant?

A It is, although, as I explained in my testimony, I don't regard the .663 as an appropriate estimate of the volume variability of letter processing costs.

Q I understand that, but you still are of the opinion that the difference between 100 percent and the .663 is statistically significant?

A It is.

Q And if you will bear with me, Dr. Neels, and just walk through the remainder of the variabilities in that table, the estimated variability from the flats model is .857, correct?

A That is correct.

Q And the standard error there is .022?

A That is correct.

Q And again would you agree that the difference between the .857 flats variability and 100 percent is statistically significant?

A I would.

Q And the parcels variability in your table is .750?

A That is correct.

Q And the standard error there is .034, correct?

A That is correct.

Q And once again would you confirm for me that the difference between the .750 parcels variability and 100

percent is statistically significant?

A That is correct.

Q And Dr. Neels, the .663 letter variability, do you recall, is that lower than each of the four variabilities that Dr. Bozzo estimates for the separate letter sorting cost pools?

A As I recall, it is.

Q I'm still on Table 8, page 60, Dr. Neels.

You report values for the adjusted or squared statistic for your shape levels models there, correct?

A That is correct.

Q Is it fair to say that an adjusted R square statistic represents the fraction of the variance in the dependent variable explained by the regression model?

A That is correct.

Q In other words, the adjusted R squared statistic tells you something about the goodness of fit of the model, correct?

A It does.

Q In the case of your Table 8, is the dependent variable shape level hours?

A It is the natural log of shape level hours.

Q And the explanatory variables in the shape level models are the natural log of TPH and the other variables included in Dr. Bozzo's models?

A Yes.

Q Okay, and again if you will walk through with me the adjusted R squared for letter shape model is .997, correct?

A That is correct.

Q And for the flat shape model it is .996?

A That is correct.

Q And for the parcel shape model it is .959?

A Yes, all as shown in the tables.

Q Thank you. Do those statistics indicate that there is relatively little variation in shape level hours that is not explained by the explanatory variables included in the shape level regressions?

A That is the implication of it.

Q Did you conduct any formal tests to indicate whether the effects of the variables other than TPH were jointly or individually statistically significant?

A I did not.

Q Would you expect that if you had performed those sorts of appropriate tests the variables other than TPH would have been shown to be jointly significant?

A Not having conducted the test, I am speculating as to what the outcome of that test would be. I don't have strong opinions, prior opinions one way or the other.

To the extent that this specification mirrors that

of Dr. Bozzo's I would expect to find that there would be some similarities in terms of the pattern of significance.

Of course, aggregating across shapes is a fairly substantial change, so it might be different and I wouldn't want to speculate as to what would have happened had I done something I didn't do.

Q Dr. Neels, would you turn to page 72 of your testimony now, and I am looking specifically at lines 9 through 11, where you state, and I am quoting, "In principle, given detailed enough models one ought to be able to arrive at the correct result.

As a practical matter, however, I doubt that such richly-specified models will be achievable in the foreseeable future."

Do you see where I am?

A I see it.

Q Does that statement or those two statements, I guess, refer primarily to the level of detail in Dr. Bozzo's models?

A They do.

Q Do those statements also apply to your shape level models?

A I think they apply there as well.

Q Could a correct result, as you have indicated in that statement on page 72, in principle be variabilities

greater than, less than, or equal to 100 percent?

A In principle, yes.

If we are talking about -- I mean in this section of my testimony I am talking about the -- sort of the shortfall between what we have to work with now and what I would regard as being an appropriately detailed specification.

I think we could expect that the answers would be different, but you can't say a priori what the effect of that difference would be.

Q Dr. Neels, I would ask you to refer to the cross examination exhibit which we provided you the other day.

It is entitled, "Effect on Base Year '98 Volume Variable Costs of Substituting Neels' Shape Level Variabilities Without FHP Adjustment for Postal Service Variabilities."

If you don't have that with you I have additional copies, and if you will give me a minute I will provide one to your counsel and to the Commissioners.

Do you have that in front of you, Dr. Neels?

A I do.

Q Okay. And have you had a chance to examine it?

A I have.

Q Okay. Now, just as an introduction here, I'm not asking you to say that your shape level models are

appropriate to use. In fact, you gave some indication a few minutes ago that you didn't think they are.

I just want to try and get some idea of what the effect of substituting your results for Dr. Bozzo's in the Postal Services volume variable cost calculations would be.

Do you agree that what this cross examination exhibit does is substitute the variabilities from your shapes level models, before your FHP adjustment for Dr. Bozzo's estimates and computes the base year 1998 pool volume variable costs and the composite variability as a result of that substitution for comparison with Dr. Bozzo's results from Table 9 of USPS-T-15, and Witness Van-Ty-Smith's calculation in Table 1 of USPS-T17?

A I believe you have -- I'll accept your description of this table; that's what it appears to be.

MS. DUCHEK: Mr. Chairman, I'm going to hand two copies of what I have designated USPS-Neels-XE-1 to the Court Reporter and ask that they be transcribed into the record.

MR. McKEEVER: No objection, Mr. Chairman.

CHAIRMAN GLEIMAN: It is so ordered.

[Exhibit Number USPS/Neels-XE-1 was marked for identification, received into evidence and transcribed into the record.]

USPS-Neels-XE- /

Effect on BY98 Volume-Variable Costs of Substituting Neels Shape Level Variabilities (w/o FHP adjustment) for Postal Service Variabilities
Costs in thousands of dollars

Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Source	Pool Total Cost, BY98 USPS-T-17, Table 1	Bozzo Variability, Response to USPS/UPS-T15-9 Tr. 15/6386	Bozzo Variability USPS-T-17, Table 1	Neels Shapes UPS-T-1, Table 8	Pool Variable Cost, Response to USPS/UPS-T15-9 C1 x C2	Pool Variable Cost USPS-T-17, Table 1	Neels Shape Variable Costs C4 x C1	Difference C7-C6	% Difference C8/C6
Letter Shape Cost Pools									
BCS	1,043,841	0.897	0.895		936,325	934,238			
LSM	78,765	0.956	0.954		75,299	75,142			
Manual Letters	1,563,964	0.737	0.735		1,152,641	1,149,514			
OCR	219,070	0.752	0.751		164,741	164,522			
Subtotal Letter Shape	2,905,640			0.663	2,329,007	2,323,415	1,926,439	-396,975	-17.1%
Flat Shape Cost Pools									
FSM	1,042,369	0.82	0.817		854,743	851,615			
Manual Flat	459,933	0.773	0.772		355,528	355,068			
Subtotal Flat Shape	1,502,302			0.857	1,210,271	1,206,684	1,287,473	80,789	6.7%
Parcel Shape Cost Pools									
Manual Parcel	60,593	0.522	0.522		31,630	31,630			
SPBS Non-Priority	283,275	0.645	0.653		182,712	184,979			
SPBS Priority	82,446	0.645	0.653		53,178	53,837			
Subtotal "Parcel" Shape (	426,314			0.75	267,520	270,445	319,736	49,290	18.2%
Total	4,834,256				3,806,797	3,800,544	3,533,648	-266,896	-7.0%
Composite /1					78.7%	78.6%	73.1%		

Notes:
1/ Composite is volume-variable cost as a percent of pool total cost for all reported pools

BY MS. DUCHEK:

Q With that exhibit still in front of you, Dr. Neels, do you agree that the composite variability or the ratio of volume variable costs to total costs, using your shape level variabilities as substituted in this exhibit, is 73.1 percent?

A I would agree with that, and I won't belabor the record by noting that I don't accept the validity of the calculation, but certainly that's what's shown here under the assumptions that this was produced under.

Q And that 73.1 percent is lower than the 78.6 percent composite variability resulting from Dr. Bozzo's estimates for the set of cost pools, correct?

A That's correct.

Q Okay. Would it be fair to say that in this exhibit, the reason that the composite is lower, substituting the shape level variabilities into the Postal Service's calculations, is because the letter shaped cost pools, which get a lower variability in the shape level models, are about a billion dollars larger in pool total costs than the combined flat and parcel cost pools?

MR. McKEEVER: Mr. Chairman, may I ask counsel if counsel could specify. I've lost it. If counsel could specify what numbers counsel is comparing, instead of describing them?

MS. DUCHEK: Sure.

BY MS. DUCHEK:

Q I believe Dr. Neels could answer the question if he referred to Column 8 of that exhibit.

They show you basically the net difference.

A Well, as I recall the question, you were -- there were several parts to the question, and you were asking -- one part of it was pointing out that there was a billion dollar difference, roughly, in cost between the letter shaped pool and the combination of flats and parcels.

Q Correct.

A I notice that looking at Column 5, there is a pool cost. Looking at Column 1 --

Q Right, correct.

A There is a pool cost of $2.9 billion for letters, and roughly $1.9 billion for the combination of flats and parcels.

Q Correct.

A I can confirm that part of your question, as I recall it. And as we've already discussed, the composite variability for letters coming out of the shapes regression and not adjusting for the relationship between FHP and TPH is lower than the variabilities produced by Dr. Bozzo.

And that seems to account for all of the difference, all of the reduction in variable costs between

this calculation and Dr. Bozzo's calculation.

Q Okay, thank you, Dr. Neels.

So would it be the case that aggregating to the shape level, again without your FHP adjustment, does not increase volume variable costs overall; it just increases it in selected cost pools?

A I would agree with that, but I regard the correction for the TPH-FHP relationship as being critical to this, and, in fact, one of the main reasons for moving to the shapes level.

Q Understood, thank you.

A couple more questions on the shapes level models, Dr. Neels:

In the parcel model, as I understand it, you combine the SPBS and manual parcel cost pools because they are potentially interrelated; is that correct?

A That's correct.

Q And would that potential interrelationship be something like because smaller, machineable parcels could potentially be sorted in either operation?

A That is correct, and also because over time, as I have indicated in my testimony, there are many cases in which a site had only manual parcel processing and acquired an SPBS at some point during the period covered by the data.

So, you know, I would assume in those cases that

manuals that had once been sorted entirely manually, were divided between the two activities at the end of the period.

Q Now, aren't SPBS and manual Priority Mail operations similarly interrelated?

A They would be.

Q Would you explain why you have chosen to exclude the manual Priority Mail cost pool from the parcel shape level model?

A Well, as my own analysis evolved, I began working with the set of MODS categories used by Dr. Bozzo, and he had combined the SPBS Priority and non-Priority into a single model. And I stuck with that rather than -- you know, as the analysis evolved, I say honestly, I never got around to breaking it down to sort of try and separate out the Priority. And I think that, although it occurred to me late in my analysis that that might be a sensible thing to do, I never -- just never got to it. There was a lot to do in a short period of time.

Q Would you turn now to your response to Interrogatory 43 from the Postal Service, subpart (a)?

A I have it.

Q And you indicate there that, using your shape level models, it is not possible to separately derive marginal costs for piece handlings, for instance, in manual and automated sorting operations, is that correct?

A Well, I think I say you can't infer MODS level marginal costs from shape level models.

Q And that would mean piece handlings in a manual or automated operation, as an example, correct?

A As an example, yes.

Q Did you consider any econometric specifications that would allow you to separately derive marginal costs for piece handlings in manual and automated sorting operations?

A Well, I did some, I think I -- certainly, I worked with Dr. Bozzo's specifications, which allow those calculations.

Q Dr. Neels, now I would like to talk about your analysis of the relationship between TPH and FHP, and I will just reiterate again that by TPH, where appropriate, I also mean TPF. If you would look at page 60, line 11, of your testimony, please.

A I have it.

Q Do you have that?

A Yes.

Q Does that formula indicate a definition of volume variability as the product of an elasticity of costs with respect to TPH and an elasticity of TPH with respect to FHP?

A It does.

Q And you repeat that definition in Note 1 to Table 9 on page 62, as well, is that correct?

A I do.

Q Now, would you take a look at your response to Postal Service Interrogatory 35, subpart (d), please?

A I have it.

Q The formula in that interrogatory response defines volume variability as the elasticity of costs with respect to the RPW volume of subclass (j), is that correct?

A That is correct.

Q RPW volume and FHP volume are not the same thing, correct?

A No, they are not.

Q So, would it be fair to say that these two definitions of volume variability that you are offering are not identical?

A It would only be partially fair. I think what would be completely fair would be to change the definitions that we saw in my testimony to include a third term, which would be the partial derivative of log FHP with respect to log RPW volume. And I think, you know, that is -- there has been some discussion in these proceedings about the proportionality assumption.

Generally, it is assumed that a cost driver is proportional to volume and I believe that FHP -- I think I even said this is in one of my interrogatory responses, FHP is more likely to be proportional to volume. And,

effectively, I have treated the partial derivative of log FHP, with respect to log RPW volume, as equalling one. And I think under that assumption, these definitions are consistent.

Q Would you turn now to your response to Postal Service Interrogatory 3, subpart (d)?

A I have it.

Q Thank you. And you have indicated there, have you not, that you have not conducted any quantitative analysis of the relationship between FHP volume and RPW volume, correct?

A That's correct.

Q If you would look to your response just above that, that is to subpart (c) of Interrogatory 3, at the end of the response, you state, and I am quoting, "Any departures from direct proportionality between FHP volume and RPW volume would have an equal or greater effect on the relationship between TPF and RPW volume." end quote, is that correct?

A That is correct.

Q Now, is it possible that a departure from direct proportionality between FHP volume and RPW volume could be in the direction of less than 100 percent variability between FHP and RPW volume?

A So, in other words, if volume, if RPW volume goes

up by X percent, FHP volume goes up by something less than X percent?

Q That's correct.

A It is possible for that to happen. I would say it is possible. I can't think of an example whereby it would happen. It might happen if there were a change in the configuration of the network such that mail, with increasing volume, mail -- more mail went direct without going through intermediate processing facilities, possibly.

Q Let's assume, hypothetically, that the elasticity of letter TPH with respect to FHP is equal to two and the elasticity of FHP with respect to RPW is one-half. Then, would the elasticity of TPH with respect to RPW volume be the product of those elasticities?

A Assuming that both elasticities were appropriately estimated, I think that would be the case. If it were the case that the relationship between RPW volume and FHP volume were less than one because of an increasing amount of worksharing, that is something I would regard as an exogenous factor that would have to be controlled for, not something that was volume related. So, subject to the qualification that things like that have been appropriately taken care of, I would say yes.

Q So, in the example I have given of the elasticity of two and one-half, the product would be one?

A The product would be one, in that example, correct.

Q Generally, if FHP is less than 100 percent variable with RPW volume, then would the elasticity of TPH with respect to RPW volume be less than the elasticity of TPH with respect to FHP, other things equal?

A Can you run that question by me again? Just -- I am not sure I got all of it.

Q Sure. In general, if FHP is less than 100 percent variable with RPW volume, then would the elasticity of TPH with respect to RPW be less than the elasticity of TPH with respect to FHP, other things equal?

A I believe that would be correct, subject to the qualifications I said before, that in measuring both relationships, non-volume factors have been appropriately taken into account.

Q Now, I would like to ask about your specific interpretation of the TPH, FHP elasticities. As I recall, your estimate of the elasticity of letter TPH with respect to letter FHP is about two, is that correct?

A That sounds about right, and looking at Table 10, I see that is about right.

Q I apologize, I should have referred you to the citation in your testimony. Would that mean, as an example then, that a 10 percent increase in letter FHP would be

expected to result in a 20 percent increase in letter TPH?

A Yes.

Q Hypothetically, if there were 100 percent proportionality between FHP volume and RPW volume, as you generally assume, would it then also be the case that a 10 percent increase in RPW volume would be expected to result in a 20 percent increase in letter TPH, assuming the 100 percent proportionality?

MR. McKEEVER: Mr. Chairman, may I ask for the question to be repeated, please?

MS. DUCHEK: Certainly.

BY MS. DUCHEK:

Q If, hypothetically, there were 100 percent proportionality between FHP and RPW volume, as Dr. Neels generally assumes, would it then also be the case that a 10 percent increase in letter RPW volume would be expected to result in a 20 percent increase in letter TPH?

MR. McKEEVER: Thank you.

THE WITNESS: That would be the case, yes.

BY MS. DUCHEK:

Q So, if a hypothetical RPW letter currently were to require five TPH to be finalized to its destination, and after that RPW volume increased 10 percent, would your model predict that this hypothetical RPW letter would then require six TPH to be finalized to its destination?

MR. McKEEVER: Mr. Chairman, I apologize. I just would like clarification for my purposes of "your model."

MS. DUCHEK: Dr. Neels' model.

MR. McKEEVER: Well, which?

MS. DUCHEK: The letter shape model for TPH and FHP.

MR. McKEEVER: Thank you.

THE WITNESS: Okay. Given my letter shapes model for the relationship between FHP and TPH, and the assumption of a 100 percent variability between RPW volume and FHP, and assuming also that there was a 10 percent increase in letter volume, RPW volume, the implication of that is that TPH would grow by the amount you stated. The average letter would go from five to six, if I am doing all the arithmetic in my head correctly here.

BY MS. DUCHEK:

Q And do you have an operational explanation which would support that result?

A Well, the operational implication of that result would be that at points in the Postal Service's network, more processing steps are being added as volume expands.

A simple way that could happen, as I understand, mail flows would be, if there were -- you might have had a situation where there was a manual processing pool and a bar code sorter.

And so non-bar-coded mail was being processed manually; installation of an optical character reader that applied bar codes to the mail could result in the mail going first through the OCR and then through the bar code sorter, which would be two TPH where before there had been one.

And if that happened at enough locations over the -- around the network, and enough mail was routed through that particular processing stream, that would be one operational explanation.

It could possibly involve some reorganization of processing where there were sequential sorts being carried out.

It would essentially involve the addition of extra processing steps within the plant.

Q Dr. Neels, was the goal of your TPH-FHP analysis to estimate the elasticity of TPH with respect to FHP?

A It was.

Q And at page 34, line 10 of your testimony, do you characterize your modeling approach in that regard as a, quote, "reverse regression," end quote?

A I do.

Q Does the term, reverse regression, basically mean that you've switched the dependent and independent variables in the analysis?

A Well, I think it's a term that's loosely used, and

I'm not sure that it has a precise definition.

That's one interpretation. In the case of a model which is not completely linear, it could involve inverting the function to -- you know, so that what was formerly -- you know, a parameter --

A variable that was formerly embedded in the nonlinear function on the right hand side, subsequently became the dependent variable.

Q Well, let's look specifically at your analysis. Would a direct regression of your analysis have TPH as the dependent variable, and FHP as an explanatory variable?

A Embedded in some functional form, yes.

Q And in your reverse regression, FHP is used as the dependent variable, and TPH is an explanatory variable; is that correct?

A Again, embedded in some mathematical representation, yes.

Q Did you use the reverse regression to avoid potential estimation problems that might result from using FHP as an explanatory variable?

A Yes.

Q And, specifically, would the estimation problem be the potential bias that results from random measurement error?

A That was the concern I had.

Q Okay. So, hypothetically, if FHP were measured without error, you would not have needed to use the reverse regression approach, correct?

A If FHP were measured without error, then presumably you could have used the non-reverse regression.

Q Or what I have termed the direct regression?

A Yes.

Q Okay.

Dr. Neels, would you agree that econometricians generally specify direct regressions appropriately for the problem they're working on?

A Good ones do.

Q Dr. Neels, would you turn to Interrogatory 33 -- your response to Interrogatory 33 from the Postal Service, Subpart (d)?

A I have it.

Q If I understand your answer, you are not confirming that the direct regression equations that look just like your models, but with TPH as the dependent variable and FHP as the explanatory variable, were the correct direct regression models corresponding to your reverse regressions; is that correct?

A I think I do confirm that, and as we talked about before, in discussing the difference between direct and indirect, you can talk about just switching variables from

one side to the other, or you can talk about, in the case of a nonlinear model, mathematically transforming the model to put something different on the right-hand side.

The model that I estimated was nonlinear and it can't be transformed into the model that's presented in this interrogatory, and that was the reason why I didn't confirm that this is my model in direct form.

Q So would it be fair to say that you have had no way to explicitly determine whether the functional form of the direct regression equations implied by your reverse regressions have appropriate properties?

A I haven't examined them.

Q Would you turn now to your response to the Postal Service's Interrogatory Number 52?

A I have it.

Q And if you would turn to the second page of that response, I'm looking at the very last elasticity derivation that you provide. Do you have that?

A I have that.

Q Now, does that elasticity derivation depend on the functional form of your reverse regression?

A It does.

Q So, if your reverse regression had a different functional form, it would follow, would it not, that the elasticity formula using that derivation would be different?

A That would follow.

Q Would you turn now to page 33 of your testimony, please?

A I have that.

Q I'm looking specifically at lines 15 through 16 where you state, and I quote, "First handling pieces counts the unique number of mail pieces entering the facility," end quote.

Now, just to clarify -- yes?

A I have the point you referred me to. I don't have a question.

Q Oh, I'm sorry, I read you that statement, and you see that statement, correct?

A I see that.

Q All right, now I'll go on to my question. Just to clarify, does FHP count all pieces entering the facility or just those pieces that require distribution at the facility?

A My understanding is that it counts pieces requiring distribution.

Q Now, would you turn to page 31 of your testimony, lines 9 to 10?

A I have it.

Q And I'm specifically looking at where you state, and again I quote, "Piece handlings is a measure is conceptually distinct from volume," end quote.

Do you have that?

A I have that.

Q And then you further go on in lines 12-13 to state, and again I quote, "A piece handling, however, is generated each time a piece of mail at a specific site is processed in a particular sorting activity. Thus, in the vast majority of cases, a single piece of mail will generate many piece handlings as it makes it way from origin to destination." End quote.

Now, do those statements illustrate the conceptual distinction between piece handlings and volumes?

A They do, and let me elaborate a little bit on this: There is some volume of mail that bypasses sorting activities entirely.

So that's one basis for the distinction between RPW volume or the volume of mail tendered for delivery, and piece handlings.

In addition, the other -- if you sort of then focus on the mail that does get sorted, because those are the activities that were the focus of Dr. Bozzo's testimony, then there's a difference between the one piece of mail and the number of times it goes through -- the number of times it's processed, generating a piece handling at each of those steps along the way.

I think those are the two main differences, as I

understand it, between the measure -- between volume and piece handlings.

Q Dr. Neels, I would like to ask you now a few questions about your aggregate time series analysis, and I would ask that you turn to Postal Service Interrogatory 48, subpart (a), please.

Do you have that?

A I have that.

Q Specifically I am focused on where you, quote, you indicate that you, quote, "reviewed the changes that have occurred in the definition of cost segment 3.1 and decided that for the purposes of measuring systemwide volume variability they did not appear to be significant. Arguably this review constitutes an analysis."

Does this statement indicate that your review that you are speaking about was qualitative rather than quantitative?

A It does.

Q Okay. Now in your response to 48(a) you talk about describing different definitions of the dependent variable. In your response to Interrogatory 11(b) you make that reference.

Do those definitions of the dependent variable that you are referring to there involve including additional CRA cost segments in the costs you used as the dependent

variable?

A I am trying to collate this against the earlier interrogatory that is referred to there.

Q That's fine. Take your time.

A If you could bear with me for a moment.

Yes. I did conduct, in the aggregate analysis I used three different dependent variables that added different cost segments to the segment 3.1 total and that was what I was referring to, I believe, in the earlier Interrogatory 11, in my response to earlier Interrogatory 11.

Q Okay, and so just to make sure we are clear, what I was trying to confirm was that you -- this didn't involve investigations of the effects of definition changes to cost segment 3.1? Correct?

A That is correct.

Q Would you consider using data based on a consistent definition of cost segment 3.1 in all years to be a generally preferable approach for the purposes of your time series analysis to using data where the definition of cost segment 3.1 has changed?

A I mean as a general proposition, yes. I mean there is evolution over time sometimes in definitions capture changing realities, so I think you would have to get down into the specifics of it.

Q And do you agree that the Postal Rate Commission's definition of cost segment 3.1 is also the definition advocated by UPS Witness Sellick in this proceeding?

A Yes.

Q Dr. Neels, did you run any regressions using FY '97 and FY '98 costs according to the Commission's and UPS's definition of cost segment 3.1?

A I have not.

Q Did you run any regressions using the subset of data for the period of time covered by Dr. Bozzo's and/or Dr. Bradley's analyses?

MR. McKEEVER: Mr. Chairman, I am assuming we are still talking about the aggregate time series analysis only?

MS. DUCHEK: Yes, we are.

MR. McKEEVER: Thank you.

THE WITNESS: I have not run it for those shorter time periods.

Those periods would be significantly shorter and would leave very little data with which to try and infer any statistical relationships.

BY MS. DUCHEK:

Q If I could ask you now to turn to page 70 of your testimony, Dr. Neels and look at Table 12.

A I have it.

Q And, Dr. Neels, I would also like you to take a

look at the cross examination exhibit we supplied previously to you.

It is the one entitled "Confidence Intervals for Parameter Estimates in USPS-T-1 Table 12."

We will mark that as USPS/Neels Cross Examination Exhibit 2, and we can provide you another copy of that.

We will provide one to your counsel and to the Commissioners.

CHAIRMAN GLEIMAN: USPS-Neels-XE-2 was marked for identification.

[Cross-Examination Exhibit USPS-Neels-XE-2 was marked for identification.]

COMMISSIONER LeBLANC: Could I ask the attorneys to check their mikes, if you don't mind. We are getting some backfeed here. After you have finished speaking, make sure that they are off, please. Thank you.

BY MS. DUCHEK:

Q Do you have that, Dr. Neels?

A I do.

Q Now if you would look at page 70 of your testimony, Table 12, the column entitled MP Clerks and Handlers, does that contain the highest estimates of both the volume variability and work share parameter that you report in the table?

A It does.

Q And in the cross-examination exhibit, have the volume variability and work share estimates and standard errors been correctly transcribed from that column in Table 12 in your testimony?

A They have been.

Q Does the cross-examination exhibit accurately present the upper and lower bounds of the 90, 95, and 99 percent confidence intervals for those parameters assuming that the estimators are normally distributed with mean and standard error given by the estimates you report in Table 12?

A It appears to. I haven't verified the calculations but they look correct.

Q Well, would you accept that they are, subject to check?

A Yes.

[Pause.]

MS. DUCHEK: Mr. Chairman, I am going to hand two copies of the Confidence Intervals for Parameter Estimates in USPS-T-1, Table 12 that have been marked as USPS-Neels Cross Examination Exhibit 2 to the reporter and ask that they be transcribed in the record.

MR. McKEEVER: No objection, Mr. Chairman.

CHAIRMAN GLEIMAN: So ordered.

[Cross-Examination Exhibit USPS-Neels-XE-2 was received into evidence and transcribed into the record.]

USPS-Neels-XE- 2

Confidence intervals for parameter estimates in UPS-T-1, Table 12

			Confidence intervals /2					
	Estimate	Standard error	90% confidence interval /3 Lower	90% confidence interval /3 Upper	95% confidence interval /4 Lower	95% confidence interval /4 Upper	99% confidence interval /5 Lower	99% confidence interval /5 Upper
Volume Variability	1.193	0.303	0.695	1.691	0.599	1.787	0.412	1.974
Work Share	0.855	0.256	0.434	1.276	0.353	1.357	0.196	1.514

Notes
1/ Source: UPS-T-1, Table 12
2/ Based on normal distribution
3/ Estimate +/- 1.645 x Standard error
4/ Estimate +/- 1.96 x Standard error
5/ Estimate +/- 2.576 x Standard error

BY MS. DUCHEK:

Q Dr. Neels, one final series of questions. If you would turn, please, to your response to Postal Service Interrogatory 47, in particular subparts (c) and (d).

A I have it.

Q If you will bear with me a minute, I don't.

[Pause.]

BY MS. DUCHEK:

Q You indicated there that you excluded the FY '79 and FY '80 observations from your time series regressions because you did not know whether some of the volume data in Library Reference I-117 -- that is Postal Service Library Reference I-117 -- represented true zeroes or missing values. Is that a correct assessment of your response?

A That is.

Q What material did you review to try to determine whether or not the data to which you refer were or were not true zeroes?

A As I recall there were some footnotes to the table that I thought were subject to ambiguous interpretation at the time, and that was really the only information I had in front of me at the time to make the decision.

Q If you had been able to determine whether those data were true zeroes or that those data were true zeroes would you have included them in your time series regression?

A I probably would have.

MS. DUCHEK: I have no further questions. Thank you very much, Dr. Neels.

CHAIRMAN GLEIMAN: Is there any follow-up?

[No response.]

CHAIRMAN GLEIMAN: I would like to take a five-minute break right now, if it is okay with everyone. We may have some bench questions.

[Recess.]

CHAIRMAN GLEIMAN: Before I ask the few questions that we have, I just wanted to mention, and I should do this at the beginning of each day until we get used to it, inasmuch as we are broadcasting the proceedings over the Internet now, when you are not participating in the sense of asking or answering a question, or making a motion, you should turn your mike off. If you perchance lean over and talk to someone next to you while your mike is on, it is going to be broadcast. So you have to remember that, and I probably have to remember it more than most of you.

Having warned myself and you, maybe I ought to turn the mike off before I ask these questions so as not to embarrass myself. But I guess I am in so deep now that it doesn't matter. Just a few questions to get your overall professional view in our continuing effort to sort things out.

Do you think that the Postal Service could assemble a data set that would be more acceptable for an econometric study of mail processing labor costs than is currently the case?

THE WITNESS: I have a great respect for --

CHAIRMAN GLEIMAN: Now, you will have to turn yours on or we won't have your answers broadcast.

THE WITNESS: I think that they could. I mean I have respect for the Postal Service's data collection ability. I do think such a data set would have to address the issue of finding an appropriate cost driver, which, as I flag in my testimony, is I think one of the big unresolved problems in this area.

CHAIRMAN GLEIMAN: Do you MODS could be used for this purpose?

THE WITNESS: With appropriate modifications, I think it probably could. It might involve trying to get a better handle on the mail coming in to a mail processing plant, which, as I understand it now, is an imperfect measurement process.

CHAIRMAN GLEIMAN: As a practical matter, how can the Commission judge whether a data set is sufficiently large, complete and error-free to give an econometrician a good opportunity to obtain reliable estimates of variabilities?

THE WITNESS: Well, you mentioned size, cleanliness and reliability, were those your three adjectives there?

CHAIRMAN GLEIMAN: Size, how complete and how error-free.

THE WITNESS: Well, I think for size, you know, there, essentially, the test has to do with the precision of the estimates. Does it give results that are statistically significant and precise enough to support decision-making? And that is probably a relatively easy hurdle to cross. Completeness, I think means that you need to have data on all of the factors that people agree are important in determining costs for mail processing. So that I think, for example, you know, my comments about the need for a good reliable cost driver come under that heading.

I think probably having a better understanding of the relationship of capital costs and labor costs probably comes under that heading, too. I think the guide there is to ask whether the -- sort of the factors that have been identified in these discussions are adequately represented in the data set.

Now, then as far as reliability or cleanliness of the data, I think there has been a lot of discussion about error rates and cleaning procedures and, you know, what are the obviously problems that show up in the data series. I

think if, you know, as Dr. Bozzo notes, all data sources have some degree of error and I think you would need to figure out, you know, what percentage of the observations are infected by obvious problems, and, also, what are the causes of those. I think this is a point I made in my testimony in R97.

I think you need to understand why it is breaking down to have a sense of what biases are present. And that leads back to, I guess an assessment of, is there some quality control on the data collection procedures? Are people going back and looking to make sure that, you know, procedures are being followed and adhered to, and that obvious problems are being identified and corrected? That is an ongoing process, and I think a reliable data set should have, you know, some of that kind of support.

CHAIRMAN GLEIMAN: Am I correct that you found the R97 mail processing variability adequately justified by evidence that mail processing operations exhibit approximately constant returns to scale?

THE WITNESS: This is in R97?

CHAIRMAN GLEIMAN: Our R97.

THE WITNESS: Our R97.

CHAIRMAN GLEIMAN: The Commission's.

THE WITNESS: Yes. I think that, certainly, in R97, I was not persuaded by the evidence that there were

constant returns, or that there were less than constant returns to scale. And, you know, I think there was also some evidence on some of the cross-sectional analyses to support constant returns to scale. So I think in that proceeding I was generally unsatisfied by the state of the evidence, but, given that a decision had to be made, I recommended then going ahead with constant returns to scale assumptions. I think the record is more complete here and provides more support for that conclusion.

CHAIRMAN GLEIMAN: Have you done any additional analysis for this case that bears on that conclusion?

THE WITNESS: Other than what is reported in my testimony?

CHAIRMAN GLEIMAN: Yes.

THE WITNESS: The only additional information, which has just become available, is in preparing for my testimony, I did check to see what the effect was of omitting the '79 and '80 observations from the aggregate analysis. That was the subject of some questioning. And I haven't laid eyes on those results, but it is reported to me that they don't substantively change my conclusions.

CHAIRMAN GLEIMAN: Thank you.

THE WITNESS: That is the only other additional analysis I have carried out.

CHAIRMAN GLEIMAN: Okay. Thank you. Those are

all the questions I have, and my colleagues don't appear to have any questions for you, which brings us to follow-up questions from the bench.

[No response.]

CHAIRMAN GLEIMAN: There doesn't appear to be any follow-up. I often wonder when there is no follow-up to questions we ask, whether the questions were just bad questions or the answers were not answers that people concern themselves with. One of these days I will figure that out.

Would you like some time with your witness for redirect, Mr. McKeever?

MR. McKEEVER: No, Mr. Chairman, we have no redirect.

CHAIRMAN GLEIMAN: All right. If there is no redirect, then, Dr. Neels, that completes your testimony here today. We appreciate your appearance and your contributions to the record. We thank you and you are excused.

THE WITNESS: Thank you, sir.

[Witness excused.]

CHAIRMAN GLEIMAN: Having taken a short break, we are now going to take our 10 minute mid-morning break a tad late today. When we return, we will attempt to get Witness Hays' testimony into the record and designated written

cross, and then we will proceed with Mr. Sellick, the next UPS witness. Thank you.

[Recess.]

CHAIRMAN GLEIMAN: Ms. Noble, would you like to proceed with Witness Hays' testimony.

MS. NOBLE: I would, thank you, Mr. Gleiman. I now would like to have entered into evidence and transcribed into the record without the witness's appearance, the testimony of Keith Hay on Behalf of Magazine Publishers of America, Advo; Alliance of Nonprofit Mailers; American Business Media; Association for Postal Commerce; Association of American Publishers; Coalition of Religious Press Associations; Direct Marketing Association; Dow Jones and Company; Mail Order Association of America; McGraw Hill Companies, Inc.; National Newspaper Association; Parcel Shippers Association; and Time Warner, Inc.

The testimony of Mr. Hays is designated as MPA-T-4. There is a limited amount of discovery filed on it.

No one has requested cross examination of Mr. Hay, and I have attached to each of the two copies, a declaration by Mr. Hay, adopting the document as his testimony.

The attachments are fax copies; the originals will be filed later today when they arrive from Canada.

CHAIRMAN GLEIMAN: There was also some Designated

Written Cross Examination for the witness.

MS. NOBLE: That's correct.

CHAIRMAN GLEIMAN: Do you have a certification for that material also?

MS. NOBLE: I do not, but that can be provided if it's necessary, in addition to the certification that we have regarding the other testimony.

CHAIRMAN GLEIMAN: Unless there's an objection, I'm going to assume, since there was discussion between the Postal Service and the moving party, that there is agreement on the Designated Written Cross Examination, and the certification is sufficient along with whatever was filed with the particular interrogatory responses.

If you would hand two copies of the testimony, the Designated Written Cross Examination, and the certification you have, I'll direct the Court Reporter to transcribe that material into the record, and it will be introduced into evidence.

[Written Direct Testimony of Keith Hay, MPA-T-4, and Designated Written Cross Examination of Keith Hay was received into evidence and transcribed into the record.]

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POSTAL RATE COMMISSION
OFFICE OF THE SECRETARY

MPA-T-4

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON DC 20268-0001

POSTAL RATE AND FEE CHANGES, 2000	Docket No. R2000-1

DIRECT TESTIMONY
OF
KEITH HAY
ON BEHALF OF
MAGAZINE PUBLISHERS OF AMERICA, INC.
ADVO, INC.
ALLIANCE OF NONPROFIT MAILERS
AMERICAN BUSINESS MEDIA
ASSOCIATION FOR POSTAL COMMERCE
ASSOCIATION OF AMERICAN PUBLISHERS
COALITION OF RELIGIOUS PRESS ASSOCIATIONS
DIRECT MARKETING ASSOCIATION, INC.
DOW JONES & COMPANY, INC.
MAIL ORDER ASSOCIATION OF AMERICA
THE McGRAW-HILL COMPANIES, INC.
NATIONAL NEWSPAPER ASSOCIATION
PARCEL SHIPPERS ASSOCIATION
and
TIME WARNER INC.

I. Autobiographic Sketch

My name is Keith Hay, I am Professor of Economics at Carleton University in Ottawa, Canada. I am also the President of Econolynx International Ltd., a company specializing in economic research.

I was educated at the University of Southampton, in the United Kingdom; at the University of Toronto, in Canada; and Brown University, in the United States. I was a U.K. State Scholar, a Ford Foundation Fellow and a Killam Foundation Fellow. I am also a Fellow of the Foundation for Advanced Information Research in Japan. I have been "Visiting Professor" at the University of Southern California; York University, in Ontario Canada; and the University of Alberta (Japan Foundation), in Canada.

Over the last quarter century, I have undertaken some two hundred research assignments, often acting as an international consultant for such organizations as: the World Bank, the Asian Development Bank, the Inter-American Development Bank, the Bank of Canada, the Canadian International Development Agency, the Organization of American States, and numerous international corporations, trading companies and banks. I was executive assistant to Simon Reisman - - the "father" of the Canada-US Auto Pact and the Canada-US Free Trade Agreement - - during the period when Canada was formulating its modern free trade policies. Most recently, I have been working on the proposed Canada-Japan Free Trade Agreement, assessing the potential gains and losses.

I have worked for Canada Post on a number of assignments, most significantly, the development and maintenance of a large database of parcel competitor service standards, marketing incentives and customer rates. I serve as an adviser to several Canadian high-technology companies and I have been the CEO of a publicly quoted software company. I am a citizen of both Britain and Canada, and I live in Ottawa, Canada.

Perhaps the most significant experience I bring to these proceedings is the fact that A.T. Kearney employed me as the technical editor on the Data Quality Study. I was tasked with reading all the component studies compiled by the various experts to ensure that they read well individually, and that collectively they had some cohesion. As such I met often with the authors and discussed the various data quality issues at length. I believe this gives me an excellent insight into the subject of "Data Quality and Rate Making."

II. Purpose and Scope of Testimony

Data quality is fundamental to sound decision making based on sample statistics. Good decisions must therefore rely on good data. Postal rate making in the United States is viewed from the outside as setting "best practices" for the world, by adhering to the highest standards of scientific method and statistical application. Accountability, transparency, methodology and the ability of third parties to replicate statistical methods and sample results are the key-stones of the high standards desired by the Postal Rate Commission, the United States Postal Service and its end-user stakeholders.

The cost of mistaken decisions based upon inappropriate cost estimates could potentially be severe for the stakeholders and for the credibility of the US rate-makers. Moreover, there is no going back; once the standards for research integrity are lowered, the floodgates will open and science-based rationality will prove difficult to enforce in the future. While the desire for a quick answer or fix may be understandable,k the risk of making a mistaken decision is much greater to the shareholders and American consumers than any benefit of a quick answer derived from applying non-random and judgmental statistical procedures.

When there is no study design, a lack of pre-set confidence limits, weak adherence to consistent random sampling, no statistical cost study questionnaire, variable decision rules, no training manuals for enumerators or great concern about consistency of data collection, and only *ex post facto* attempts to get stake-holders to buy into results, then the interpretation of the arising results must be treated very warily. Recent work by Mr. Raymond and Mr. Baron reworking an Engineering Standards Study to produce inputs for cost-estimates appears to exhibit many of the afore-mentioned shortcomings.

In and of themselves, Engineering Standards studies have important roles to play in determining time and motion aspects of route performance. However, the data acquisition methods applied in ES research are quite different and often

inappropriate for ratemaking purposes. This is a situation in which wrongly applied "any data" (arising from the ES study) may be worse than "no data" (from statistical cost studies) and the compounding of decision making errors cannot be justified. The budget costs – and delay -- of undertaking a scientifically sound, well designed, statistical study, as suggested by the Data Quality Study, in the immediate future are dwarfed by the likely value of the improvements in sample accuracy, data quality and avoidance of rate making errors.

In my testimony, I review some issues of statistical research in decision making; look at concerns about data collection methodology, and discuss the question "is any data better than no data?"

III. Value Of Research in Decision Making

a. Scientific Method in Statistical Studies

As is well known, there is a long history of the use of scientific method in survey research. Probability theory has been ably applied for almost a century to the issue of obtaining estimates of the parameters of a population based upon random sampling of that population. The structuring of the research project requires careful planning, which involves:

- consulting early with clients, end-users and decision-makers likely to be affected by study outcomes (stakeholders);
- reviewing previous studies/literature;
- determining a set of questions to be answered or objectives to be fulfilled;
- adopting the appropriate null hypotheses;
- establishing acceptable confidence limits for the desired results;

- selecting a random sample frame and method - - for instance stratified sampling, cluster sampling - - and/or multiple applications of these;
- developing a questionnaire with expert advice from the client, end-users and those who will base their decisions on the research outcomes;
- making sure that the answers fit the questions - - not that the questions fit the answers;
- running a pilot study to refine procedures;
- incorporating lessons learned from the pilot study;
- establishing decision rules to deal with sampling and data quality issues *before* they arise;
- devising manuals to guide enumerators and analysts;
- ensuring consistent methods of data collection across the sample strata or clusters by means of training, handbooks and logbooks;
- training the trainers and emphasizing continuity and consistency in quality control;
- recognizing the importance of moments of demarcation in activities subject to analysis and measuring them with a keen eye to precision;
- handling the data with care with a view to preserving the scientific integrity of the overall methodology; and
- presenting the results with suitable disclaimers as and when appropriate.

All of this, of course, to be achieved on a research budget which is always - - by definition - - too tight, and within a timeframe that is inevitably too short! These are not easy tasks. But in general, the stricter the adherence to the pre-designed research approach, the more likely are the results to be usable with known *confidence,* while the *quality* of the resulting data will more likely be acceptable to researchers, clients and end-users as a whole.

Research design, sample randomness, enumeration accuracy and overall transparency are fundamental to the ability to positively answer the question: "if another researcher independently undertook to answer these same questions with these same data, could the original results be *replicated*"?

b. Designing the Sample Frame

i. Randomness versus system

Statistical analysis is used to make accurate inferences about the parent population under examination. A sample is selected and observed for this purpose in order to know more about the population as a whole. Difficulties arise because of ever-present variation among elements of the population, such that successive samples are usually different. The task of the researcher is to come to appropriate and reasonable conclusions about the population while bearing in mind the issues associated with sampling variation.

The researcher must cope with *two* key requirements in carrying out the analytical task. The first is to design a sampling frame and undertake the sampling so that it is representative of the population, and the second is to use the sample results to draw correct inferences about the population. Clearly, it is most difficult to achieve the second objective if the first is not well done. Inferences are unlikely to be accurate unless the sample has been taken competently. Therefore, the sampling procedure must be acceptable before attributing to the population results arising from an analysis of the sample.

In general, for samples to contain worthwhile and reliable information about the population, *each* unit of the sample must be selected at *random,* requiring that each element of the population has a known probability of appearing in the sample. If selection is left to the judgement of the researcher, his/her associates or interested third parties and they exercise their own choices, then the probability

surrounding these selections becomes unknown and the application of standard statistical procedures is confounded.[1]

A common procedure for ensuring randomness in a sample is to leave its drawing to a mechanical process, such as a random number generator, beyond the control of the research team and interested parties. This argument also applies when samples are stratified and/or clustered (as noted below). While we can admit that pure randomness is rarely attained in research practice, it is a fundamental aim of statistical research methodology, and invokes the mathematical model upon which the preponderance of statistical theory relies.

The closer the researcher can approximate randomness, the more nearly accurate will be the inferences drawn from the research study.

ii. Sample Size and Cost/Confidence Considerations

Given that procedures are in place to achieve a high degree of randomness in sample selection, a key issue is how large must be the sample size? If the sample size is too small – it may be too inaccurate to be reliable. Too large a sample may require the expenditure of too many resources while adding little extra information beyond what could be obtained from some smaller yet useful sample size. At issue is a determination of how large an error the researcher and his stakeholders can live with in the estimate. Moreover, the decision on an acceptable error also must take into account the uses to be made of the results and the potential cost and revenue consequences of different magnitudes of error - - for the client and other end-users who may ultimately be

[1] Non-probabilistic sampling procedures, such as *quota* sampling and *convenience* sampling, represent judgement samples, since they involve the selection of items in a sample on the basis of opinion, not randomness. When the population is small, or time/money will not allow collection of a random sample, or the study is strictly exploratory, then a judgement sample may be justified, but the statistical implications of abandoning random sample selection should be well understood, should be clearly flagged and should be expected to attract comment.

affected by the use of these results. This goes to the issue of *data quality* and the validity of inferences to be drawn from the data.

Put another way, the researcher should set up an allowable error, in terms of confidence limits, *before* designing the sample frame and deciding on the sample size - - overall, by strata and/or by cluster.

Once a decision of this type is made by the researcher and his stakeholders - - say that they are only willing to take a 5% chance that any error will exceed the allowable error in the sample mean - - then they have selected a 95% confidence limit for their study. With this decision in hand, there are then a number of ways to estimate what is an acceptable sample size for the research undertaking. These require bearing in mind prior information (from earlier studies or related populations), results of pilot studies, statistical methods for complex sampling, and budget constraints. Essentially, some advance estimates are needed of both the relative costs per unit of collection and expected variance in the strata and/or cluster under observation; rough estimates will often give sample size indications that are acceptably close to an optimum allocation.

Simple random sampling of a large population may be difficult to achieve, not least because it might prove very costly. More practical procedures may be employed recognizing that they will also be more restrictive and open to discussion and dispute. Among the methods that may be employed are:

- *Systematic sampling* – choosing a random starting point and selecting every *Kth* element to be an item in the sample;
- *Stratified sampling* – dividing a population into homogeneous groups or classes as *strata.* Each stratum is then randomly sampled;
- *Cluster sampling* – where the parent population is sub-divided into groups so as to design an efficient sample. These *clusters* ideally have the same characteristics as the parent population and are then randomly sampled.

iii. Stratified Sampling

The best method of selecting strata is to find groups *with a large variability between strata, but only a small variability within the strata.* Choice among and within these groups may then be based on a random selection method.

A *proportional* stratified sampling plan would use items from each stratum in proportion to the size of that stratum, to ensure that each stratum in the sample is weighted by the number of elements it contains, relative to the parent population. A *disproportionate* stratified sample may be an efficient device, if it is known that a particular stratum contains a high degree of variability that will yield a maximum amount of information for a given amount of research effort. The *weighting* of such results should reflect the proportionality or dis-proportionality of the sample strata.

iv. Cluster Sampling

The objective here is to obtain observations such that there is *little variability between clusters, but a high degree of variability - - representative of the parent population - - within each cluster.* If each cluster is assumed to be representative of the parent population, then the characteristics of the population can be estimated by *randomly* picking a cluster and *randomly* sampling elements within this cluster. Two-stage random sampling within a cluster is often effective and efficient.

v. Multiple and Sequential Sampling

When budget constraints impact sample design, it is often useful to frame a pilot study wherein only a small number of items are used to represent the parent

population. If high variance is uncovered, then it may be valuable to undertake multiple-stage sampling, especially when the parent population is large.

The advantage of sequential sampling is reflected in the savings that result when fewer items than usual must be observed, say from a cluster within a cluster.

vi. Choice of Sample Methods

Selection from among several types of random sampling plans depends on the researchers prior knowledge of the parent population (and the results of previous research); namely the likely validity of *stratified* and *cluster* sampling to achieve efficient and confident parameter estimates of the population. Issues to address include:

1) What is the most cost effective method to collect samples that best ensures that the samples are representative of the parent population?
2) How reliable are the inferences and conclusions about the parent population likely to be drawn from sample information?
3) What are the best ways of describing sample information usefully while not-overstating the predictive power of the results?

It is the decisions resulting from incorrect inferences that can be costly, not the incorrect inferences themselves. Thus, there is a requirement on behalf of the client and stakeholders that the sampling methods employed minimize the cost of making an incorrect decision, or error.

At the end of the day, a primary objective of sample design is to balance the potential costs of making an error against the costs of undertaking sampling.

vii. Trial Sample Testing and Lessons Learned

Pilot studies, which use the overall research design, sampling methodology and questionnaire set-up, yield valuable insights. Discussion of pilot results with clients and stakeholders often refines the issues, tightens the project focus, and sharpens the statistical tools. It also ensures a higher degree of stakeholder acceptance of the research end results. Moreover, information on sample statistics gleaned from the pilot can be very helpful in deciding on the optimal overall sample size to achieve best value for money within the confidence limits acceptable to the clients and stakeholders. It also allows the researcher to test the decision – rules adopted concerning data quality, data inclusion/exclusion, and analytical methods. In summary, results from a pilot or trial sample usually reveal potential pitfalls in avoiding bias in the final results. Studies which neither explain the choice or and rationale for one of these methods of sampling, nor provide the target confidence limits should be viewed with concern. Only if the study is exploratory, or its conclusions regarding the parent population unnecessary, should these rigorous standards be relaxed,

IV. Data Collection Issues

i. Questionnaire design – "Answers to Questions" v. "Questions made to fit the answers."

It almost goes without saying that questionnaire design is very important to achieving useful results. Clients and stakeholders should be consulted. Badly designed questions elicit difficult to interpret answers. Any Canadian will give you plenty of examples concerning questions about "Quebec Separation" – how distorted do you want the answers to be?! Pilot surveys usually reveal unexpected questionnaire responses due to a poorly framed interrogatory. Re-wording will usually remove potential response biases. Perhaps the most

alarming approach is to design the questions *after* the survey has been conducted (for another purpose) and attempt to make "the questions fit the answers" in some fashion. Since the enumerators *did not know* these post-survey questions, how could they exercise any quality control over what was being measured *ex.post*, or recognize any data deficiencies – random or endemic? This "cart before the horse" procedure leaves in tatters all the issues of errors in data collection, data exclusion/inclusion and decision rules, since the relevant questionnaire and its objectives were unknown to the research designers and the enumerators *until after* the data had been collected.

For example, none of the questions that Mr. Raymond answers in his cost study were posed to enumerators.[2] All answers recorded were based on a different "unspecified" set of criteria. This is an instance of a researcher fitting the observation tallies, i.e. "the answers" into a new set of questions – the six cost categories. How well he has done this is a matter of conjecture and divination. It appears as if the researcher is doing the complete exercise *backwards*. For reasons earlier discussed, it is not possible to offer any level of confidence in the sample or the parameter estimates arising therefrom.

A typical cost study questionnaire design would clearly specify the activity to be observed and the *points at which it begins and ends*. No such questionnaire exists for these data nor are there any relevant observational standards.

ii. Engineering estimates versus cost estimates

There is a remarkable difference between quantifying the number of sufficient time and motion segments for an *engineering study* of time use, versus quantifying the appropriate number of routes, by route type to develop a

[2] See L. Raymond, Direct Testimony on behalf of the United States Postal Service before the Postal Rate Commission, Washington, D.C. 20268-0001, Docket No. R2000-1, USPS-T-13 and his Library Reference to USPS-LR-1-163, Engineered Standards Database.

statistically valid sample for purposes of cost estimation and rate-making decisions.

Industrial Engineers (I.E.) use sampling techniques to measure distinct pieces of work, which are not necessarily the same as those used in cost estimates. The I.E. advantage, from a statistical perspective, is that the individual errors are not cumulative, so as estimates are added together, provided no inherent bias exists, the total error reduces. This enables them to measure individual work elements to a lower degree of accuracy than is called for in statistical cost studies.

In addition, I.E. estimates often exclude any time measure for inefficiencies or low productivity. As cost estimates capture these two elements it is essential that the sampling for cost studies be constructed so as to avoid any bias from these factors. The various aspects and distinct elements of load time cannot be merged together - - as in I.E. - - without recognizing that there will be significant losses in accuracy and variability for cost estimation purposes.

iii. Enumeration methods

The method by which Mr. Raymond conducted his enumeration of data for the Engineering Standards study was generally acceptable for that species of study. A systematic time interval occurring frequently enough to minimize the affects of regular break times, cyclical activities, was measured. However, Mr. Raymond had his enumerators also doing a variety of other activities, such as taking video pictures, recording paces walked, at the same time as tallying the observations. Tallies were given a lower priority than these other activities, with the enumerator entering the information from memory some minutes later. This procedure is unacceptable in a typical cost estimate study because potentially it magnifies the probability of error.

iv. Training manuals and log-books

Mr. Raymond has consistently said that no training manuals for his data collectors exist and that the only logs kept were the notes made by the enumerators on the daily records that are buried in volumes of other raw data sheets.

In a typical cost study all data collectors would pass the same training course to ensure consistency between enumerators, and each would commence work with a training manual to use as a reference document during the study. A logbook is normally kept in which work times, numbers of observations and anomalies, are recorded - - together with any changes that are made to the observations after-the-fact. These manuals and logs are key elements of any well-designed statistical survey.

v. Training the trainers

Where it is necessary for more than one trainer to be involved in training the enumerators, it is essential to identify the key points that must be focused on to ensure subsequent consistent observations by the various trainees, e.g. the load time begins at the moment that the letter carrier's feet stop moving at the end of a walk and ends at the moment that the foot is lifted to start away from a stop.

It should also be remembered that the majority of the training for Mr. Raymond's study focused on factors of importance to the Engineering Study, I.e. video training, how to enter the information with the bar code reader, how to identify the various activities and types of mail receptacle rather than maintaining the consistency and accuracy of cost-related data collection.

vi. Training the enumerators

Enumerators all need to be trained to the same observational standards if data are to be consistent across strata or clusters. In Mr. Raymond's Engineering Study a variety of different training methods were used, which were certainly acceptable for the work being undertaken – observations of the work activities for industrial engineering time estimates, frequencies, and percentage occurrence of various different activities. This training however, was inconsistent and woefully inadequate for data collectors working on a statistical study to allocate costs.

vii. Decision Rules on Data Acceptance

Elimination of any sampled data should only occur in extremely vexed cases, e.g. violent weather, power failure and the like, and in accordance with pre-determined decision rules. Excluded data are usually presented for review by clients and to other researchers attempting to replicate the study results. These procedures are not necessarily adhered to in Engineering Studies. They appear not to have been subscribed to fully by Mr. Raymond when using engineering data to make cost estimates.

viii. Data Quality Maintenance

Throughout this discussion, the emphasis has been on efficiently obtaining usable research results, without sacrificing data quality. Researchers, clients and stakeholders all have interests in getting the best (accurate) and most up-to-date sample statistics concerning the key cost parameters in the parent population, in this case the route operations of the United States Postal Service.

Certainly, there are many examples where the budget or available time-frame has driven the sample size and the confidence in the results obtained has suffered accordingly. It is however, critical to recognize that decisions that have far-reaching cost and revenue implications may not be best served if they are based upon results obtained from subsidiary studies in which corner-cutting considerations have perforce led to a series of deviations from "best-practice" statistical methodologies for cost studies.

Indeed, the Data Quality Study (1998) emphasized the importance of improving *methodological standards* rather than abandoning them. As world leaders in postal ratemaking practice, the Postal Rate Commission continues to require the highest standards of research performance – given the available resources – to enhance its deliberations and inform its decision-making.

IV. Are any data better than no data?

i. The need for new USPS cost data.

There is general agreement about the long-standing need to up-date and improve the USPS cost data. This need was highlighted in several parts of the Data Quality Study which unearthed "rules of thumb" dating back to the 1920's which are still being applied in the twenty-first century. Moreover, the client (USPS) and the stakeholders (the mailers) recognize that the familiar cost parameters dating from the past two decades have been overtaken by technical change, productivity shifts, traffic patterns, work methods and many other extraneous forces. Nevertheless, any shifts away from these long established "traditional" cost parameters should be gradual, well founded and widely "bought-into" by both the USPS and the stakeholders.

ii. Quality Data for Quality Decisions

In the balance, there is far too much revenue/expenditure at stake for ratemaking decisions to be based on inadequate new data or flawed research procedures. A robust and scientifically defensible innovative cost study needs to be done and the USPS needs to find the budget to commission it, as a matter of priority. Band-Aid solutions and half measures are simply not acceptable - - what would "Big One" lottery ticket holders have thought if their numbers were not included in the recent $360 million lottery drawing?! All the data from the parent population must be available for a random sampling process and professional vetting must be done when the research is designed, implemented and reported upon.

iii. What the Data Quality Study said about Letter Carrier Costs

The Data Quality Study, commissioned jointly by the PRC, USPS and the General Accounting Office, was quite specific in its recommendations with regard to Delivery Costs. Pages 53 to 56 of the Technical Report #4 are provided in an Appendix. These recommendations include:

- Redesign and update the relatively old and highly imprecise Delivery special studies.
- Review the data being developed by the Delivery Re-design project to assess if this information is a possible *long-term* (my emphasis) replacement for IOCS and some special study data.

These imply an extensive discussion of what the Re-design project was doing and what the Postal Service should do with it. The recommendation was qualified with the following important statement: "Reviewing this data now can also allow the rate making forces within the Postal Service to impact the quality of data to be collected in this new system."

It most certainly did not say: "Dig into what has already been done and see if you can fit some previous observations into something to replace the special studies." In fact no-one could be better placed than A.T. Kearney to understand whether the work by Mr. Raymond - - already completed when reviewed by the Data Quality Study - - could be used for rate-making, since A.T. Kearney was responsible for both the Data Quality Study and the Engineering Study managed by Mr. Raymond. The forward-looking nature of the suggested solution speaks volumes.

iv. Is the Engineering Study data better than no data?

Great caution should be exercised in considering whether to use the Engineering Study data results as a basis for developing new cost results guiding ratemaking. There is no criticism here of the Engineering Standards study *per se*. However, there is extreme reticence to use the reworked data from this study for purposes for which it was never designed or collected.

No confidence levels can be ascribed to these data because no sample design was made. The best we can say is that we have information on a number of pre-selected postal stations. How these relate to the total universe we are unable to say. The resulting cost data, calculated by Mr. Baron, may be indicative and even enjoy a degree of accuracy, but no one can say with any *confidence* what value to put on these sample estimates because of the unacceptable fashion in which they were obtained. The one thing that these results do achieve, is to underscore how important it is to undertake a transparent, replicable and scientifically defensible study of relevant cost parameters in the USPS route system at the earliest opportunity.

CERTIFICATE OF SERVICE

I hereby certify that I have this date served the foregoing document upon all participants of record in this proceeding in accordance with the Commission's Rules of Practice.

Anne R. Noble

Washington DC
May 30, 2000

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07/12/2000 13:40 FAX 202 296 0343 MPA DC 001

DECLARATION
OF
KEITH HAY

I declare under penalty of perjury that the foregoing Direct Testimony of Keith Hay on Behalf of the Magazine Publishers of America, Inc. et al. (MPA-T-4) was prepared by me and that if called upon to testify under oath, it would be my testimony.

Keith Hay

Executed: July 10, 2000.

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, DC 20268-0001

Postal Rate and Fee Changes, 2000 Docket No. R2000-1

DESIGNATION OF WRITTEN CROSS-EXAMINATION
OF MAGAZINE PUBLISHERS OF AMERICA
WITNESS KEITH HAY
(MPA-T-4)

Party	Interrogatories
Newspaper Association of America	NAA/MPA-T4-2-3
	USPS/MPA-T4-2
United States Postal Service	USPS/MPA-T4-1-7

Respectfully submitted,

Cyril J. Pittack
Acting Secretary

INTERROGATORY RESPONSES OF
MAGAZINE PUBLISHERS OF AMERICA
WITNESS KEITH HAY (T-4)
DESIGNATED AS WRITTEN CROSS-EXAMINATION

Interrogatory	Designating Parties
NAA/MPA-T4-2	NAA
NAA/MPA-T4-3	NAA
USPS/MPA-T4-1	USPS
USPS/MPA-T4-2	NAA, USPS
USPS/MPA-T4-3	USPS
USPS/MPA-T4-4	USPS
USPS/MPA-T4-5	USPS
USPS/MPA-T4-6	USPS
USPS/MPA-T4-7	USPS

NAA/MPA-T4-2. Please refer to your testimony at page 8, line 13 through page 9, line 29.

a) Did you analyze the sample sizes of Witness Raymond's ES study? If so, please provide a detailed account of both your approach and your findings.
b) In you opinion, what are acceptable sample sizes for a study as Witness Raymond's ES study?
c) Do you have any recommendations for selecting allowable error or confidence limits for cost estimation for ratemaking purposes?
d) At pages 27-28 of her testimony, MPA Witness Crowder suggests that the "unweighted sampling ratios" resulting from Witness Raymond's ES study invalidate his sample. In your opinion, what are adequate unweighted sampling ratios?

Response:

(a) I am assuming in this instance that what you describe as the Raymond ES study is the testimony and library references provided by witness Raymond to this rate case. I did not analyze sample sizes in Witness Raymond's Engineering Standards (ES) Study because of the non-scientific procedures used to select the sample and their apparent lack of overall randomness. If random procedures are not adhered to throughout, the sample size is largely meaningless.

(b) Please see pages 8 through 10 of my testimony and the answer to part (c) below.

(c) If the chosen random sample size is (say) 1100, then the survey research industry standard is such that the results may be considered accurate to within three point zero (3.0) percentage points, 19 times out of 20, of what they would have been if the entire population had been polled. The margin of error will be larger within regions and for sub-groupings of the survey population. Data are often statistically weighted to ensure the sample's regional and other characteristics reflect those of the actual universe population according to previously known census-type data.

(d) Adequate sampling ratios are those that allow the random sample to reflect the spatial and other characteristic mixes of the universe under investigation. See also answer (c) above and my testimony on page 10, lines 7 to 14.

NAA/MPA-T4-3. Please refer to your testimony at page 14, lines 10-15, where you state "[i]n addition, I.E. estimates often exclude any time measure for inefficiencies or low productivity. As cost estimates capture these two elements it is essential that the sampling for cost studies be constructed so as to avoid any bias from these factors. The various aspects and distinct elements of load time cannot be merged together—as in I.E.—without recognizing that there will be significant losses in accuracy and variability for cost estimation purposes."

a) Please identify any instances where Witness Raymond's ES study excluded time measures for inefficiencies or low productivity.
b) Please assess the specific bias form these tow factors inherent in Witness Raymond's ES study.
c) Please identify any instances where Witness Raymond's ES study merged together "various aspects and distinct elements" of load time.
d) Please provide a specific example (from either Witness Raymond's ES study or elsewhere) of the significant loss in cost estimation accuracy or variability from industrial engineering.

Response:

I am assuming in this instance that what you describe as the Raymond ES study is the testimony and library references provided by witness Raymond to this rate case.

Engineering standards studies, of a generic nature, are designed to produce results for performance management and staffing requirements, and as such their measurement methods may not coincide with the requirements of measurement in a cost study. For instance, it may be satisfactory for engineering standards purposes to calculate a time for walking one pace, a time for sorting one letter, a time for mounting one step, and a time for depositing letters in a box. As discrete units of time they can be reconstructed into a delivery time by counting the number of paces, counting the letters, counting the steps, and knowing the type of receptacle in use. For costing purposes we randomly sample complete actual operations.

(a)-(d) As the work presented by Raymond was a small part of a larger engineering study, (itself part of the Delivery Redesign Program), and had the purpose of identifying the delay factors, it does not exclude time measures for inefficiencies, nor does it exclude low productivity. As such none of *these* factors create any *additional* biases. However, as witness Crowder has said in her testimony, there is apparently confusion over what non-productive activities were included, and should have been included, in the *ex post* load time assessment.

RESPONSE OF MAGAZINE PUBLISHERS OF AMERICA WITNESS HAY TO INTERROGATORIES OF UNITED STATES POSTAL SERVICE (USPS/MPA-T-4-1-7)

USPS/MPA-T4-1. Please provide a complete listing of all publications that you have authored or co-authored.

Response:

Please see attached partial list of publications and reports.

Keith A. J. Hay (written work, partial listing)

REPORTS, BOOKS AND MONOGRAPHS:

- *Using the Post Office as a Development Tool* (with David Rawnsley), presented at the 8th "Conference on Postal and Delivery Economics", Vancouver, Canada, June 2000.
- *Issues of Statistical Cost Studies in the United States Postal Service*, Testimony before the US Postal Rate Commission, Washington, D.C., May 2000.
- *Canadian International Trade with the USA: Relative Trade Growth under NAFTA: A Comparative Time Series Study*, Japan Ministry of Foreign Affairs, March, 2000.
- *Notes on E-Business, Knowledge Management, and Developing Countries*, CIDA, Africa Branch, January 2000
- *Economic Growth, Aid Effectiveness and Poverty Reduction in Sub-Saharan Africa*, CIDA Africa Branch, Jan. 2000 (with Neil Saravanamuttoo)
- *Challenges and Opportunities for Guyana and the Caribbean: Recent Trends in Globalization and the Information Revolution*, The First International Management Conference in Georgetown, Guyana, October 1999
- *Canada-US Auto Pact, Implications for Japan at the WTO*, Japan Ministry of Foreign Affairs, March 1999.
- *A Model for the Postal Industry in a Developing Economy* (with David Rawnsley and A. Robinson), presented at the 6th "Conference on Postal and Delivery Economics", Berne, Switzerland, June 1998.
- *Data Quality Study*, US Post Office, Postal Rate Commission, December 1998 (with Peter Waylie).
- *Blainville Horse Show Study*, Blainville Horse Show, March, 1998.
- *Prospective Issues on North American Automotive Trade*, Embassy of Japan, Ottawa, Canada, September, 1998 (with P. Kanagaratnam)
- *Canada-U.S. Trade Relations*, A Success Story of Dynamic Strategic Management, Embassy of Japan, Ottawa, Canada, May, 1998.
- *Economic Impact of a Large Horse Show*, Ontario Horsemen's Association, September 1997.
- *Assessment of Impact of Rural Maintenance Program*, CARE-Bangladesh, December, 1997.
- *Western Grains R&D and the International Agricultural R&D System*, Agriculture Canada and CIDA, Ottawa, 1997 (with Ellen Hols).
- *China Sichuan Telephone Project Financing Simulation Analysis*, Asian American Telecommunications Corporation (AAT), Columbus, Ohio, USA, 1996.
- *Implications of the Growth in Asia Trade and Traffic for Transportation Safety and Security: Satellite Navigation and Communications*, (with Ellen Hols), Asian Pacific Economic Cooperation Group, (APEC) Manila, 1996.
- *China Transport Sector Programming Options Paper*, (with Vaughan Corbett and Ellen Hols), CIDA China Desk, November 1996.
- *Canadian Export Opportunities in Asian Housing Markets*, (with Ellen Hols), Asian Pacific Economic Cooperation Group, (APEC) Manila, 1996.
- *Impact of Various Size Horse Shows on Economies in Canada*, (with Ellen Hols), Professional Horsemen's Association in Canada, November 1996.
- *Vietnam Telecoms Project Financing Simulation Analysis*, (with Ellen Hols), PortaCom Wireless, Los Angeles, Ca., USA, 1996.
- *Feasibility of Producing a Combined Annual Report for CIDA*, (with E. Hols and T. Gebre-Kidan), CIDA, 1996
- *Macro Economic Considerations of Development Lines of Credit and Counter-Part Funds* (Gous Gilroy), CIDA, 1996.
- *Review of Infrastructure Services Evaluation*, CIDA Performance Review, 1996
- *Needs Assessment Study, Controller General of Peru*, (with G. Blanchet and R. Lefebvre), PAR Group, Lima, Peru, 1996.
- *Methodology for Economic Monitoring in Ghana*, Canadian International Development Agency, Africa Branch, 1995
- *Infrastructure for Development in Asia: Strategic Programming Options*, Canadian International Development Agency, Asia Branch. 1995.
- *Guyana Technical Assistance, Seminar & Workshop*, (team leader) Canadian International Development Agency, 1995.
- *Evaluation of the Co-operative Republic of Guyana: Structural Adjustment Credit*, The World Bank, 1995-96.
- *Report on Revising the Canadian Bank Act and Supervision for Financial Institutions*, Department of Foreign Affairs, Tokyo, Japan, 1995.
- *Strategic Partnering Project: China Economic Benefits Study*, GEC Alsthom Electromechanical, Montreal, 1995.
- *Sources of Economic Instability in the Americas*, Canadian International Development Agency, Americas Branch, 1995.
- *Support to Public Expenditure Report: Methodology for Economic Monitoring in Ghana*, for Canadian International Development Agency, Africa Branch, 1995.
- *Infrastructure for Development in Asia: Strategic Programming Options*, Canadian International Development Agency, Asia Branch, 1995.
- *Guyana Technical Assistance, Seminar & Workshop*, Canadian International Development Agency, 1995.
- *Evaluation of Co-operative Republic of Guyana: Structural Adjustment Credit*, The World Bank, 1995.
- *Evaluation of Guyana Community Development Fisheries Fund*, collaboration with Frans Assema, Dada International, 1995.
- *Strategic Partnering Project: Economic Benefits Study*, GEC Alsthom Electromechanical, 1995.
- *Canada Aid and Trade: Institutions, Policies and Results*, Canadian International Development Agency, Policy Branch, 1994.
- *Electric Power Generation in ASEAN: Market Opportunities*, Foreign Affairs Canada, and Canadian Power Systems Export Promotion Group (CAPSEP), 1994.
- *Capital Markets and Financing of Power Equipment Exports and Services to ASEAN*, Foreign Affairs, Canada and Canadian Power Systems Export Promotion Group (CAPSEP), 1994.

- *Economic and Strategic Pre-Feasibility Study: Vietnam*, Canadian International Development Agency, Asia Branch, Vietnam Program, (CIDA), 1994.
- *Structural Adjustment Programs in Sub-Saharan Africa*, Canadian International Development Agency (CIDA), 1994.
- *Economic Reform in Four Southern Africa Countries and Prospects for Economic Integration in the Region*, Canadian International Development Agency, (CIDA), 1994.
- *Executive Summaries and Recommendations: Donor Assistance in the Context of Structural Adjustment in Southern Africa*, Canadian International Development Agency (CIDA), 1994.
- *Tanzania: Recent Performance and Prospects*, Canadian International Development Agency (CIDA), 1994.
- *Lessons Learned: CIDA in Jamaica*, Canadian International Development Agency, Audit and Evaluation Division, (CIDA), 1994.
- *Current Situation and Outlook for Canadian Aid Policy*, Embassy of Japan, 1994.
- *Capital Markets and Financing of Power Equipment Exports and Services to ASEAN*, Foreign Affairs, Canada and Canadian Power Systems Export Promotion Group (CAPSEP), 1994.
- *Hydro Electric and Transmission Distribution Equipment Manufacturing A Strategic Asset For Canada*, Consortium "A" & "B", Hydro Electric and Transmission Distribution Equipment Manufacturers, 1994.
- *Electric Power Generation in Major International Markets: Business Opportunities*, Emerson Electric Canada Ltd., 1994.
- *Poverty Reduction and the Bangladesh Garment Export Sector*, Canadian International Development Agency, Ottawa, 1994 (with Angela Keller-Herzog and Hillary Hay).
- *Trade, Investment and Development of the People's Republic of China*, Canadian International Development Agency, 1993.
- *An Analysis of Trade and Investment in Indonesia*, Canadian International Development Agency, Ottawa, 1993.
- *CIDA's Balance of Payments Support Program for Guyana: Evaluation of Support Group Activities, Structural Adjustment Program and Development Lines of Credit*, Audit and Evaluation Division, Canadian International Development Agency, June 1993 (with Angela Keller-Herzog).
- *Economic Restructuring in Southeast Asia*, Canadian International Development Agency, 1993 (with Angela Keller-Herzog and Christine Thompson).
- *Dispute Settlement Mechanisms: Lessons for Canada-Japan Commercial Relations*, The Canada-Japan Trade Council, 1993 (with Ish K. Singhal).
- *Thailand, Mexico and the North American Free Trade Agreement*, The National Economic and Social Development Board (NESDB), Bangkok, Thailand, 1993 (with Christine E. Thompson and Angela Keller-Herzog).
- *Canadian Environmental Capabilities Survey*, Canadian International Development Agency, Ottawa, 1993 (with C.G. Smallridge & Associates).
- *DAC Review of Japan's Development Cooperation*, Canadian International Development Agency, Ottawa, 1993.
- *Economic Benefits Study Wang Fu Zhou*, Canadian Hydropower Consortia "A" and "B", June 1993.
- *Canada-US Trade Dispute Settlement Mechanism*, Government of Japan, 1993.
- *Impact of Liberalizing the MFA For Bangladesh on Specific Canadian Clothing Subsectors*, Canadian International Development Agency, Ottawa, 1992 (with David R. Avon).
- *Some Issues Concerning CIDA's Approaches to Regional Planning in East Asia*, Asia Branch, Canadian International Development Agency, August 1992.
- *Canada-Japan: The Export-Import Picture 1992*, Canada-Japan Trade Council, Ottawa, 1992 (with Colin A. Saravanamuttoo).
- *Impact Study of the Multi-Fibre Arrangement (MFA) on Bangladesh*, Canadian International Development Agency, Ottawa, 1992 (with Soc Thinn).
- *Economic Study of the Canadian Sheep and Wool Industry*, Agriculture Canada, Ottawa, 1992.
- *Business Opportunities in Poland: A Guide to Agricultural Ventures*, EAITC, Ottawa, 1992, (with Armando Peschard-Sverdrup and Sheldon I. Polowin) pp 293
- *Financing Future Exports of Canada's Electrical Power Equipment Industry, in Energy Studies Review*, (Volume 4, Number 2), McMaster Institute of Energy Studies, McMaster University, Hamilton, Canada, 1992 (with C.A. Saravanamuttoo), pp 161-180.
- *Financing Future Exports of Canada's Electrical Power Equipment Industry*, Canadian Power Systems Export Promotion Group, Ottawa, 1992, (with C.A. Saravanamuttoo).
- *Environmentally Sustainable Technology Transfer of Coal-Fired Energy Technologies: Canada and Asia, in Energy Studies Review*, (Volume 3, Number 2), McMaster Institute of Energy Studies, McMaster University, Hamilton, Canada, 1991 (with C.A. Saravanamuttoo and D.R. Avon), pp 178-183.
- *Report on the Potential and Mechanisms for Coal-Based Electrical Generation Technology Transfer Project*, Energy, Mines and Resources Canada, Ottawa, 1991 (with C.A. Saravanamuttoo and D.R. Avon).
- *Manufactures: Has Canada Got the Goods for Japan?* Canada-Japan Trade Council, Ottawa, 1991.
- *Aid to South Asia in the 1990s: Canada's Role and some Implications for Trade"*, in N.K. Choudhry, ed. Canada and South Asia Development: *Trade and Aid*, E.J. Brill, Leiden, 1991, pp.78-96.
- *Canadian Access to Funding for ASEAN Projects at International Financial Institutions*, ASEAN-Canada Business Council, Ottawa, 1990.
- *Doing Business in ASEAN: A Guide to Accessing Offshore Sources of Funding*, (with S. Polowin and A. Peschard), ACBC, Ottawa, July, 1990.
- "*Factores Determinantes y Efectos Multiplicadores de la Modernizacion del Subsector de la Agricultura*", capitulo 10, en C. Pomareda and J. Torres, eds. Modernizacion de la Agricultura en America Latina y el Caribe, IICA, San Jose, Costa Rica, 1990 (with M.M. Lynch).
- "*El Rol de la Modernizacion de la Agricultura en el Desarrollo Economico*", en Procesos de Modernizacion de la Agricultura en America Latina y el Caribe, IICA, San Jose, Costa Rica, 1989 (with M.M. Lynch).

- *ASEAN and the Shifting Tides of Economic Power at the End of the 1980's*, in *International Journal*, XLIV, 1989, pp. 640-659.
- *Evaluation of Debt Management Recording System: Sri Lanka and Papua New Guinea*; Commonwealth Secretariat, London, 1989 (with two other authors).
- *Evaluation of Debt Management Recording System: Papua New Guinea*, Commonwealth Secretariat, London, 1989 (with two other authors).
- *Expanding Markets, Diminishing Shares? Canadian Food Sales to Japan*, Ottawa, 1989 (with V.R. Flander).
- *Canada and Japan: The Money Business*, Ottawa, 1986, (with J.A. Hawkins).
- *Tourism: The Canada-Japan Pattern*, Ottawa, 1986, (with M.O. Lovatt).
- *Canada and Korea: New Partners*, Ottawa, 1985 (with M.O. Lovatt).
- *Canada's Future Technological Ties with Japan*, Ottawa, 1985.
- *Canadian Forest Products for Japan*, Ottawa, 1984 (with S.R. Hill).
- *Canadian Food for Japan*, Ottawa, 1983, (with M.O. Lovatt).
- *Canadian Coal for Japan*, Ottawa, 1982, (with S.R. Hill and S.S. Rahman).
- *Canada-Japan and the Pacific Community*, Ottawa, 1981, (with P. Price).
- *Canada-Japan: The Export-Import Picture*, Ottawa, biennially on various issues, (with V.R. Flander/M.O. Lovatt/S.R. Hill).
- *Japan's Industrial Development*. Testimony before Senate of Canada, Standing Committee on National Finance, 23rd Proceedings on Examination of Government Policy and Regional Disparities (Main Estimates 1980-1981). Issue No. 30, March 31, 1981.
- *Canadian Perspectives on Economic Relations with Japan*, Montreal, 1980.
- *Canada-Japan Trade and Investment*, Ottawa, 1979, (with S.R. Hill).
- *Friends or Acquaintances? Canada and Japan's Other Trading Partners in the Early 1980s*, Montreal, 1978.
- "*Canada's Economic Ties with Japan*", in Hillmer, N. and Stevenson, G., Foreign Nation, Toronto, 1977, pgs. 268-293.
- *Japan: Challenge and Opportunity for Canadian Industry*, Montreal, 1971 (translated into Japanese and published, Tokyo 1973).

OTHER ARTICLES:

- "*Financing Future Exports of Canada's Electrical Power Equipment Industry*", in Energy Studies Review Vol. 4, No. 2, 1992, pp. 161-180.
- "*Aid to South Asia in the 1980s: Canada's Role and some Implications for Trade*", in N.K. Choudhry, ed. Canada and South Asia Development: Trade and Aid, E.J. Brill, Leiden, 1991, pp.78-96.
- *Canadian Exports to Japan: 1989*, presented at the Canada-Japan Business Cooperation Conference, Hiroshima, Japan, May, 1990 (with K. Pringsheim, published in Proceedings)
- "*ASEAN and the Shifting Tides of Economic Power at the End of the 1980's*", in International Journal, XLIV, 1989, pp. 640-659.
- And more than forty other articles published on topics ranging from money and macro economic stabilization, to education and health, to international economic relations, and industrial policies.

OTHER ACTIVITIES:

- *Consultant* to the numerous young high technology companies in Ottawa, Toronto and San Jose, and to the Canadian International Development Agency, Canada Post Corporation, US Postal Service, Government of Japan, Canada-Japan Trade Council, Bank of Canada, Economic Council of Canada, Agriculture Canada, Fisheries and Oceans Canada, External Affairs Canada, Inter-American Institute of Agriculture, Commonwealth Secretariat, Asian Development Bank, World Bank and other Canadian and international agencies as well as private sector groups.
- *Financial Advisor, TeamCast.Com Inc.*, a software company specializing in IP-based (Internet Protocol) application development. TeamCast.Com is focussed exclusively on web-enabled knowledge management and group collaboration. The company has developed a dynamic product called TeamCast. TeamCast is an IP-based product that facilitates knowledge management across small to large organizations over the Internet or corporate Intranets. The company delivers its product in the following three ways: TeamCast Web Service; TeamCast Enterprise Software; TeamCast Corporate Hosting Service.
- *Financial Advisor, Video Telcom International Inc.*, a revolutionary communications company in the business of manufacturing and marketing high bandwidth Optical Switches and Video Communications technologies. Video TelCom's Optical Switch technology makes it possible and economically viable to transfer an optical signal from one end of a network to the other by using the properties of the light wave itself to route the transmission along different pathways through the network. The technology can save hundreds of billions of dollars spent annually by the telecommunications companies on fiber optic installations and switching equipment to increase their market share and enhance the capabilities of their networks for the data and video transmission generating new revenue streams.
- *Financial Advisor, Ziven Technology Solutions Inc.*, an information technology (IT) solution provider to small businesses. Ziven has developed a solution to provide small businesses access to the same set of tools and level of support commonly available to most large businesses. It is a complex technology infrastructure consisting of servers, communications hardware and software required to offer a complete IT enterprise management system.

Earlier activities include, among others:

- *Expert Advisor and Managing Editor*: Economic and Strategic Pre-Feasibility Study: Vietnam, Canadian International Development Agency, Asia Branch, Vietnam Program, (CIDA), 1994.
- *Project Director*: Trade, Investment and Development of the People's Republic of China, Canadian International Development Agency, China Desk, (CIDA), 1993.
- *Project Director*: Electric Power Generation in ASEAN: Market Opportunities, Foreign Affairs Canada, and Canadian Power Systems Export Promotion Group (CAPSEP), 1994.
- *Project Director*: Capital Markets and Financing of Power Equipment Exports and Services to ASEAN, Foreign Affairs, Canada and Canadian Power Systems Export Promotion Group (CAPSEP), 1994.
- *Project Director*: NINA: Project Financing Study, Canadian Hydropower Consortia "A" and "B", 1993.
- *Project Director*: Economic Benefits Study: NINA, Canadian Hydropower Consortia "A" and "B", 1993.
- *Project Director*: Economic Analysis of the Canadian Lamb and Sheep Industry, Agriculture Canada, 1991-1992.
- *Project Director*: Prospects for Thailand's External Trade, NESDB, Thailand, 1991-1992.
- *Project Director*: Competitiveness of the Canadian Power Supply Export Sector, CAPSEP, Montreal, 1991.
- *Project Director*: Poland: Agri-Business Joint Venture Assessments, External Affairs, 1990-1991.
- *Rapporteur*: Round Table on Direct Investment from Japan, External Affairs and International Trade Canada. Report pub. March 1991.
- *Team Leader*: Report on the Potential Mechanisms for Coal-Based Electrical Generation Technology Transfer, CANMET, 1991.
- *Project Director*: Five Studies of Non-Traditional Exports from Debt-Burdened Countries in Latin America, OAS, 1989-1990.
- *Project Director*: Costa Rican Economic Development Program, CIDA, 1990.
- *Team Leader*: Philippines Industrial Survey of Seven Subsectors, (agroprocessing, fisheries, furniture, jewellery, autoparts, industrial chemicals, and footwear), CIDA, 1989-1990.
- *Sole Consultant*: Politicas Macroeconomicas y Sectoriales y el Desarrollo Agrario, Guatemala, World Bank - SEICA - IICA, 1989.
- *Team Leader*: Design of the CIDA Modern Sector Assistance, Philippines, CIDA, 1988.
- *Project Director*: Philippines Industrial Development, CIDA, 1988.
- *Project Director*: New Role of Japan in International Assistance, CIDA, 1988.
- *Project Director*: ASEAN Technology Transfer, CIDA, 1987.
- *Team Leader*: Canadian Supply Capabilities in MLE Development, Volume III, Phases B&C, CIDA, 1987.
- *Team Leader*: Gatineau Park User Pay Policy Analysis, NCC/DSS, 1987.
- *Project Director*: Market Potential for Electrical Power in Thailand and Malaysia, AECL, 1987.
- *Team Leader*: SPX Courier Ground and Air Rates: Analysis and Discussion, CPC, 1987.
- *Team Leader*: Canada-US Free Trade: An Analysis of the Impact and Implications, Embassy of Japan, 1987.
- *Project Director*: Role of US Independent Truckers in US/Canada Transborder Trucking, Transport Canada, 1987.
- *Team Leader*: Canada's Business Relations with Non-Industrialized Asia, with Special Reference to International Trade, Embassy of Japan, 1987.
- *Project Director*: Role of Services in Development of Canadian Aid and Trade with Asia, CIDA, 1987.
- *Project Director*: Selected Issues in Aid and Trade with Asia, CIDA, 1987.
- *Project Director*: China Countertrade Project, Northrop Corporation, 1987.
- *Team Leader*: Summary of Medium and Large-Scale Enterprises, Volume I, Phases B&C, CIDA, 1987.
- *Team Leader*: Case Studies in MLE Development, (studies on Costa Rica, Malaysia, Korea, and Ivory Coast), Volume II, Phases B&C, CIDA, 1987.
- *Team Leader*: Discount Policy for Parcel Shipping, CPC, 1986.
- *Team Leader*: Canada's Agricultural Sector Business with the People's Republic of China, (inc. notes on Japan and Korea), External Affairs, 1986.
- *Team Leader*: Productivity Rates in the Canadian SPX Industry, CPC, 1986.
- *Project Director*: Philippines Sector Profile: Industry, CIDA, 1986.
- *Sole Consultant*: Report on Proposal to Commence a Training Program in Economic Policies in Latin America at CIEPLAN, Santiago, CIDA, 1986.
- *Sole Consultant*: Report on Industrial Service Sector Involvement in CIDA Philippines Mission, CIDA, 1986.
- *Project Director*: Medium and Large-Scale Enterprise Policy: Defining the Issues, Phase A, CIDA, 1986.
- *Project Director*: Marketing Opportunities for Western Canada's Pork and Beef in the Far West USA, Agriculture Canada, 1986.
- *Project Director*: Canada-Africa Aid and Trade Study, CIDA/EMC, 1985.
- *Team Leader*: Electronic Mail Impact on Postal Demand, CPC, 1985.
- *Project Director*: Canada-Japan Forest Trade, Japanese Embassy, 1985.
- *Project Director*: Canadian Small Parcel Industry, Canada Post Corporation (CPC), 1984.
- *Team Leader*: Agricultural Trade With Japan (Pork) and East Asia (Meats, Oilseeds, and Grains), Agriculture Canada, 1984.
- *Project Director*: Canada-Asia Aid and Trade Study, CIDA/EMC, 1984.
- *Project Director*: Canadian Food Aid for Asia, CIDA, 1983-1984.
- *Team Leader*: Agriculture, Fisheries and Forestry Taskforce, Pacific Economic Cooperation Committee, Bangkok, Thailand, 1983.
- *Project Director*: Asia Future Study, Canadian International Development Agency (CIDA), 1982-1983.
- *Co-ordinator and Managing Editor*: Five volumes of Canada/Pacific Rim Economic Studies for IRPP.
- *Program Adviser*: (formerly Associate Director), Economics and Rural Development Program, International Development Research Centre (IDRC), 1980-1983.

- *Project Director*: International Trade and Industrial Development: A Six Country Study (Korea and ASEAN), while with IDRC.
- *Project Director*: Studies in Income Distribution: Chile, while with IDRC.
- *Project Director*: Agricultural Development Problems: Costa Rica and Nicaragua, while with IDRC.
- *Consultant* to the Royal Bank of Canada: Preparing overviews of political and economic prospects for medium-term development in Asia, ranging from India to Republic of Korea, 1981-1982.
- *Conference Convenor*: Fourth Pacific Trade and Development Conference, Fiftieth Anniversary of Canada-Japan Relations Conference, Southeast Asia Barriers to Trade Conference, Canadian Aid and Trade Seminar, and many others.
- *Staff Member*: Royal Commission on the Future of the Canadian Automotive Industry (Reisman Report), 1978.
- Also numerous lectures at universities, seminars, overseas missions and field experience in Japan, Korea, Taiwan, Singapore, Malaysia, Thailand, Indonesia, Philippines, Sri Lanka, India, Maldives, Papua New Guinea, Egypt, Lebanon, Jordan, Guyana, Costa Rica, Panama, Chile, Argentina, Jamaica, Bermuda and Barbados.

For a profile of activities focused on other regions please contact Econolynx, Ottawa.

USPS/MPA-T4-2. Please fully describe your experience in observing and analyzing the operations of the United States Postal Service. In particular, describe your experience in observing and analyzing city carrier delivery operations. In you description, include all pertinent time periods, specific operations, facilities, Postal Service personnel with whom you had contact, and geographic locations.

Response:

None.

USPS/MPA-T4-3. Please fully describe your involvement, if any, with witness Raymond's Engineered Standards Study. In your response, indicate the time period in which you first examined the methods employed in that Study, as well as the work-sampling data collected in that study. In addition, please describe all sources of your knowledge regarding that Study.

Response:

I was in no way "involved" with the work presented by witness Raymond to the rate case, described as Raymond's Engineered Standards Study. To my knowledge no such "Study" exists. In my capacity as a witness for the MPA, I was made aware of witness Raymond's testimony and viewed various documents associated with it, after they were filed with the Commission. I have since discussed them with witness Crowder and counsel.

USPS/MPA-T4-4. When did you first become involved in the Data Quality Study mentioned at page 3 of your testimony?

Response:

Please see my answer to NAA/MPA-T4-1(a).

USPS/MPA-T4-5. Please provide copies of all contracts, agreements (including confidentiality and non-disclosure agreements), task orders, job descriptions, work proposals or other documents relating to your duties on the Data Quality Study.

Response:

Please see the attached contract. There are no other documents.

INDEPENDENT CONSULTANT AGREEMENT
NO. 102590-97-B-1972-011

This Agreement establishes the terms and conditions under which the parties have mutually agreed that **Keith A.J. Hay** (Consultant) will perform services as an independent contractor, also referred to as an **Independent Consultant**, for A.T. Kearney, Inc. (Kearney). In this capacity, Consultant will provide professional services to Kearney's Linx Group as requested by the undersigned or his designated representative, who will be identified in writing.

Consultant's compensation for services provided under this Agreement for the Decision Support Systems group of the U.S. Postal Service will be **$200.00** USD per working hour. It is understood that this is Consultant's "Most Favored Customer Rate", to be verified by submission, upon request, of copies of three (3) recent Consulting Agreements or invoices showing billings at this rate. Compensation for any other engagements will be determined upon acceptance of the engagement by the Consultant and will be reflected by a modification to this agreement.

Actual and reasonable out-of-pocket expenses incurred in the performance of services under this Agreement, such as those incurred in living and travel away from home, which are adequately documented by appropriate receipts will be reimbursed by Kearney at cost. Any questions concerning the appropriateness of such expenses should be directed to and based on the prior concurrence of the cognizant Kearney project officer(s). Consultant agrees to abide by the limitations of the United States Post Office Travel Polices (Handbook F-15) concerning First Class travel, per diem rates for lodging, meals and incidental expenses, unallowable expenses, etc. The current limits for any location to be visited will be provided by Kearney upon request.

Invoices for services and out-of-pocket expense incurred may be submitted monthly to the cognizant Kearney project officer(s) to verify their allowability, allocability and reasonableness to the Kearney client(s). A separate invoice must be prepared for each client engagement (identifying client and engagement or project by name and number) or non-client project for which Consultant has provided professional assistance. Consultant's Social Insurance Number (SIN) must be on all invoices. You must make the submissions required by Attachment A before any invoices will be paid. Details substantiating hours and expenses must be submitted with each invoice. Receipts must be provided for all expenses.

It is understood and agreed that Consultant is an independent contractor and not an employee, agent or representative of Kearney and that because Consultant is not an employee, and Kearney's insurance programs do not cover independent contractors for any purpose whatsoever, Consultant is not covered by any Kearney insurance, including the provision of disability insurance, group life insurance, medical insurance, liability insurance, workman's compensation, errors and omissions or other professional insurance or participation in Kearney's profit sharing or employee benefit plans.

Items required to verify independent status are contained in Attachment A.

It is understood that Kearney will not withhold income taxes, FICA, Social Security or unemployment taxes on Consultant's behalf and that Consultant is directly and personally responsible for the payment of Federal and State self-employment and income taxes.

It is agreed that any technology, including, but not limited to computer software, which is developed or improved by Consultant under this Agreement shall be considered to have been jointly developed or improved with Kearney and shall become the property of Kearney for the purposes of delivery to its client(s).

It is also agreed that any technology developed jointly by Consultant and Kearney, as set forth above, or any technology or other information of a proprietary or confidential nature to which Consultant becomes privy while performing services under this Agreement, shall not be disclosed to persons not party to this Agreement.

Kearney has the sole discretion to ask Consultant, upon five business days notice, to cease work for any Kearney assignment or client. If Kearney's services are terminated by a client, Consultant's services on that assignment will cease immediately upon being notified by Kearney.

The Consultant certifies as follows concerning its business status (check YES or NO for **each** item):

	YES	NO
Small Business	✓	—
Disadvantaged Business	—	✓
Woman Owned Business	—	✓

Any dispute of any nature arising out of this Agreement and not resolved by agreement of the parties shall be resolved by final and binding arbitration pursuant to the rules of the American Arbitration Association. An arbitrator mutually agreed upon from the roster of the American Arbitration Association shall conduct the arbitration. In the event the parties cannot agree upon an arbitrator, the American Arbitration Association shall designate a member of said Association to serve as arbitrator.

Each party shall bear its own attorneys fees and expenses arising out of any dispute, with costs of arbitration to be paid by the losing party or equally, as determined by the arbitrator. Such arbitration shall be conducted in Alexandria, Virginia.

This document constitutes the entire agreement between the parties and may not be altered, amended or modified except by written instrument signed by both parties.

This Agreement shall remain in force from June 20, 1998 through September 30, 1998, unless canceled by either party upon thirty days written notice.

This Agreement shall be governed and construed in accordance with the laws of the Commonwealth of Virginia.

A.T. Kearney, Inc.

Name: Frank M. Somerville

Title: LINX Business Manager

Date: June 20, 1998

Contact: Frank M. Somerville
225 Reinekers Lane
Alexandria, VA 22314

Telephone: (703) 739-4762

FAX: (703) 836-0547

Consultant

Name: Keith A.J. Hay

Title: President

Date: June 26/98

SIN: 429-122-641

Address: Econolynx, Intl., Ltd.
1900 Merivale Rd., Suite 200
Nepean, Ontario K2G 4N4
Canada

Telephone: (613) 723-8698

FAX: (613) 723-7333

ATTACHMENT B

Statement Of Personal Conflict Of Interest Avoidance

A.T. Kearney, Inc. Project No. TG1005

Project Name: U.S. Postal Service

(TO BE COMPLETED FOR EACH SEPARATE PROJECT/SUB-PROJECT)

I am familiar with the scope of work for the above referenced activity and believe myself to be free of any and all Conflict Of Interest (COI)* pertaining to the companies and facilities or government agencies involved, which could impair my objectivity in performing the work.

Signed: _____

Name: Keith A. J. HAY

Date: 22 June 1998

*Any of the following may constitute a potential COI:

- History of employment by or consulting to the company or companies involved.
- Employment of immediate family member by the company or companies involved.
- Employment of immediate family member by a direct competitor of the company or companies involved.

USPS/MPA-T4-6. Please provide all memos, notes, or other documentation created by you or others in the course of your work on the Data Quality Study that relate to the potential uses of work sampling data collected during the Engineered Standards Study.

Response:

I have no such documents.

USPS/MPA-T4-7. At page three of your testimony, you state that you met often with the authors of the Data Quality Study and "discussed the various data quality issues at length." Please provide the dates of all such meetings during which the work sampling data collected by witness Raymond was discussed, and for each such meeting, provide all notes or other documentation pertaining to that discussion. For each such meeting, also list the attendees of the meeting.

Response:

I was not present at any meeting where the subject of the work sampling data collected by witness Raymond was discussed. However, I was present at meetings when the general requirement for improved data quality based on acceptable scientific method, was discussed at length. I can also conclude, based on the rigor attached to the research, analysis, and discussion of other recommendations that the DQS team made, that the recommendations with regard to the Delivery Redesign work were thoroughly researched and investigated. And finally, I can with confidence say that the recommendations made were quite unambiguous and proposed up-dating the special studies and becoming involved with the Redesign project ***so as to insure*** that ***future work*** was of a satisfactory quality to enable it to be used for rate making.

CHAIRMAN GLEIMAN: I understand that there may be a procedural matter now to try to correct a faux pas on my part earlier this week.

MR. MYERS: Yes, thank you, Mr. Chairman. Pierce Myers on behalf of Magazine Publishers.

When Witness Glick's testimony was entered into the record on Monday, the appropriate declaration was not included. I have here the declaration.

I would like to move that it be transcribed into the record and received into evidence.

CHAIRMAN GLEIMAN: If you would please provide two copies to the court Reporter, I will direct that that certification be received into evidence and transcribed into the record.

[Certification for Written Direct Testimony of Sander A. Glick, MPA-T-2, was received into evidence and transcribed into the record.]

DECLARATION
OF
SANDER A. GLICK

I declare under penalty of perjury that the written Direct Testimony of Sander A. Glick (MPA-T-2) that appears at Tr. 24/11211-11239 (July 10, 2000) and the designated written interrogatory responses that appear at Tr. 24/11241-11255 (July 10, 2000) were prepared by me and that if called to testify under oath, they would be my testimony in Docket No. R2000-1.

Sander A. Glick

Executed
July 13, 2000

CHAIRMAN GLEIMAN: Now, just so everyone knows, I'm sure everyone is aware of how confused I get on the substance of rate cases. You now will know that I'm also confused from time to time on the process associated with rate cases.

When we have witnesses who appear here wearing different hats, as is the case with Mr. Glick in this proceeding, you sometimes get confused about whether you've seen them and sworn them.

And earlier this week, Witness Glick appeared and I remembered seeing him in the witness chair once before in this proceeding, and just assumed that he had been sworn in. But as it turned out, we entered his testimony with a certification that day also.

So, this is to correct the fact that I failed to swear Witness Glick at that particular point in time. I think the procedural defect is cured.

I want to thank Mr. Glick and counsel for MPA or that group of people on whose behalf he was testifying the other day for helping correct the situation.

And I think I'll swear everybody in multiple times this time. It will avoid mistakes, and it will mean that their testimony is really the full truth, the whole truth, and nothing but the truth.

With that, Mr. McKeever, if you're ready to

introduce your next witness, we'll proceed.

MR. McKEEVER: Thank you, Mr. Chairman. United Parcel Service calls to the stand, Stephen E. Sellick.

Whereupon,

STEPHEN E. SELLICK,

a witness, having been called for examination, and, having been first duly sworn, was examined and testified as follows:

CHAIRMAN GLEIMAN: Just let me mention, Mr. Sellick, I understand that you've been a bit under the weather, and we appreciate your appearance here today, especially in light of that. I just wanted you to know that if you feel you need to take a break at some point, just holler.

THE WITNESS: Thank you. I think I'm fully recovered at this point.

CHAIRMAN GLEIMAN: Well, I'm glad to hear that. In that case, you'll get no breaks.

[Laughter.]

MR. McKEEVER: Sometimes witnesses just say too much.

[Laughter.]

DIRECT EXAMINATION

BY MR. McKEEVER:

Q Mr. Sellick, I have just handed you a copy of a

document entitled, "Direct Testimony of Stephen E. Sellick on behalf of United Parcel Service on Cost Segment 3" and identified as UPS-T-2.

Mr. Sellick, if you were to testify here orally today, would your testimony be as set forth in that document?

A Yes, it would be.

MR. McKEEVER: Mr. Chairman, I move that the direct testimony of Stephen E. Sellick on behalf of United Parcel Service on Cost Segment 3 and marked UPS-T-2 be admitted into evidence and be transcribed into the record of today's proceedings.

CHAIRMAN GLEIMAN: If you would kindly provide two copies of that testimony to the court reporter, it is so ordered -- without objection? -- and I hear none.

[Direct Testimony of Stephen E. Sellick, UPS-T-2, was received into evidence and transcribed into the record.]

UPS-T-2

BEFORE THE
POSTAL RATE COMMISSION

POSTAL RATE AND FEE CHANGES, 2000	:	DOCKET NO. R2000-1

DIRECT TESTIMONY OF STEPHEN E. SELLICK ON BEHALF OF UNITED PARCEL SERVICE ON COST SEGMENT 3

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INTRODUCTION

My name is Stephen E. Sellick. I am a Vice President at PHB Hagler Bailly, Inc. ("PHB"), an economic and management consulting firm with principal U.S. offices in Washington, D.C.; Cambridge, Massachusetts; Los Angeles and Palo Alto, California; and New York, New York. PHB was formed through the merger of Putnam, Hayes & Bartlett, Inc. and Hagler Bailly, Inc. in 1998. I am located in PHB's Washington, D.C. office.

I have more than ten years of consulting experience, including a wide range of assignments in regulatory economics, cost accounting, and financial analysis of regulated industries. In addition, I have extensive experience in environmental litigation.

I have worked on PHB's analytical investigations of United States Postal Service ("Postal Service") costing issues since 1990. In Docket No. R90-1 and again in Docket No. R94-1, I assisted Dr. George R. Hall in the preparation of analyses and testimony regarding the attributable costs of Parcel Post, Priority Mail, and Express Mail. In Docket No. R94-1, I assisted Dr. Colin C. Blaydon in the preparation of analyses and testimony concerning the treatment of mixed mail costs in the In-Office Cost System ("IOCS"). In Docket No. MC95-1, I assisted Ralph L. Luciani in the preparation of analyses and testimony regarding the costs associated with parcels handled by the Postal Service in First Class and Standard (A) Mail and in preparing supplemental testimony regarding rate design for Standard (A) Mail parcels. In Docket No. R97-1, I presented direct testimony regarding the Postal Service's proposal to modify the costing in Cost Segment 3 to incorporate a Management Operating Data System ("MODS")

based approach. I also presented supplemental and rebuttal testimony in Docket No. R97-1 regarding the MODS-based approach for Cost Segment 3.

Since 1995, I have visited and observed the operations at a number of Postal Service facilities, including the Washington, D.C., BMC on two different occasions; two Sectional Center Facilities; two Associate Offices/Delivery Units; a HASP ("Hub and Spoke Project") facility; and an Air Mail Center.

I hold a B.S. in Economics from the University of Pennsylvania's Wharton School of Business and an M.A. in Public Policy Studies from the University of Chicago.

PURPOSE OF TESTIMONY AND SUMMARY OF CONCLUSIONS

I have been asked to examine the Postal Service's new methods of costing in Cost Segment 3. In so doing, I have reviewed the testimony and workpapers of Postal Service witnesses Degen (USPS-T-26) and Van-Ty-Smith (USPS-T-17), among others.

My testimony provides the following:

1. A recalculation of base year Cost Segment 3 costs using (a) the improved methods proposed by Postal Service witnesses Degen and Van-Ty-Smith and (b) the Commission's approach using 100 percent mail processing labor cost variability as proposed by UPS witness Neels (UPS-T-1);

2. An identification of the number of IOCS observations and tally dollar costs by cost pool for use by UPS witness Neels in his testimony on mail processing costs (UPS-T-1); and

3. An identification of the costs of certain Parcel Post operations which are then used by UPS witness Ralph (UPS-T-5) to calculate a more appropriate DBMC discount.

MODS-BASED ALLOCATION OF MAIL PROCESSING COSTS

The Postal Service presents several modifications and improvements to its MODS-based distribution of mail processing costs among the subclasses of mail. These modifications and improvements are discussed and presented in the testimony of Postal Service witnesses Degen and Van-Ty-Smith. Mr. Degen also discusses the degree to which mail processing labor costs are variable and therefore attributable; my testimony does not address this section of Mr. Degen's testimony. I address only the distribution of mail processing labor costs to the subclasses of mail. I recommend that, with minor programming modifications, the Degen/Van-Ty-Smith approach to distributing mail processing labor costs to each mail subclass be adopted by the Commission.

A. The Degen/Van-Ty-Smith MODS-Based Approach Addresses the Concerns Raised by the Commission in Docket No. R97-1.

The Postal Service's approach to distributing attributable mail processing labor costs to subclasses follows, for the most part, the method the Postal Service proposed in Docket No. R97-1. This method was endorsed by UPS in that proceeding (subject to minor modifications to address the "migration" of certain Administrative and Window Service costs to the Mail Processing component of Cost Segment 3 and the distribution of costs in certain "allied" pools) and was ultimately adopted by the Commission.

In this proceeding, the Postal Service proposes several changes to the approach it recommended in Docket No. R97-1:

- Costs at Non-MODS facilities have been broken into eight processing-based functional cost pools rather than being based on the "Basic Function" (e.g., incoming, outgoing, transit, and other) cost pools used in Docket No. R97-1;
- Costs associated with "not handling" in allied pools are distributed on a broader basis than proposed in Docket No. R97-1; and
- Costs in MODS "support" pools are distributed in a "piggyback" fashion based on the cost pools which those pools support.

Each of these changes represents an improvement over the Postal Service's approach in Docket No. R97-1, and they should be adopted.

B. The Postal Service's Proposed Distribution Method Should Be Used, with Minor Modifications.

The improvements the Postal Service has proposed in the distribution of mail processing labor costs in Cost Segment 3 represent a further evolution in the development of the most appropriate methodology for distributing these costs. As the Commission determined in Docket No. R97-1, improvements of this type have no necessary relationship to the degree of variability of mail processing labor costs. The methodology proposed by Mr. Degen and Ms. Van-Ty-Smith in this case can be easily adapted to incorporate full attribution of mail processing labor costs.

A further adaptation is also required to conform to Commission practice with respect to Cost Segment 3. The "migration" of some costs previously defined as Window Service (and assigned to Cost Segment 3.2) and Administrative (and assigned to Cost Segment 3.3) should be reversed to ensure treatment consistent with the Commission's established practice. These are essentially the same "migration" reversals that were required in Docket No. R97-1 to adapt the Postal Service's approach to established Commission practice, as detailed in my supplemental testimony (UPS-ST-2) in Docket No. R97-1.

Table 1 compares the Postal Service's proposal in this case with Dr. Neels' recommended (and the Commission's established) treatment of Cost Segment 3, which returns attribution of mail processing labor costs to 100 percent. UPS witness Luciani combines Dr. Neels' recommended treatment as reflected in my Table 1 with the recommendations of other UPS witnesses to calculate the combined impact of all of these changes on Parcel Post, Priority Mail, and Express Mail in the Test Year.

TABLE 1

BY1998 Volume Variable Cost Segment 3 Costs by Class/Subclass

Class and Subclass of Mail or Special Service	Postal Service Proposal	100% Attribution
Total First Class Mail	**7,573,871**	**8,522,117**
Priority Mail	**733,035**	**901,232**
Express Mail	**127,161**	**185,985**
Mailgrams	**192**	**253**
Total Periodicals	**738,428**	**813,249**
Total Standard (A) Mail	**3,151,448**	**3,479,195**
Standard (B) Mail		
Parcel Post	260,580	275,359
Bound Printed Matter	134,482	143,723
Special Standard	86,972	93,043
Library Mail	12,397	13,035
Total Standard (B) Mail	**494,431**	**525,160**
US Postal Service Mail	**157,624**	**197,640**
Free Mail	**15,573**	**16,808**
International Mail	**294,530**	**339,278**
Total Mail	**13,286,293**	**14,980,919**
Total Special Services	**365,777**	**361,356**
Total Volume Variable	**13,652,070**	**15,342,275**
Other	**3,994,053**	**2,304,197**
Total Accrued	**17,646,123**	**17,646,472**

Sources: Postal Service Proposal – USPS-T-11, Exhibit USPS-11A, pages 1-2. 100% Attribution – UPS-Sellick-WP-1-A, page 2. Calculation of Total Accrued does not match exactly due to rounding.

CALCULATION OF IOCS OBSERVATIONS AND TALLY DOLLARS BY COST POOL

At the request of UPS witness Neels, I have calculated the number of IOCS observations and the IOCS tally dollar costs in each cost pool by mail class and non-mail activity code. These results are provided in Sellick-WP-2.

CALCULATION OF NON-BMC OUTGOING MAIL PROCESSING COSTS INCURRED BY DBMC-ENTRY PARCELS

At the request of UPS witness Luciani, I have calculated, using the Postal Service's basic approach outlined in USPS-LR-I-103, the non-BMC outgoing mail processing costs incurred by DBMC entry parcels. This approach uses IOCS data to determine the proportion of IOCS tally dollars by MODS pool and IOCS Basic Function that can be ascribed to DBMC Parcel Post and non-DBMC Parcel Post. This calculation shows that $9.34 million in Base Year 1998 attributable mail processing costs are for outgoing DBMC parcels at non-BMCs.[1] The details of the calculation are provided in Sellick-WP-3.

SUMMARY OF CONCLUSIONS

In conclusion, I find that:

- The approach to distributing attributable mail processing labor costs to subclasses as proposed by Postal Service witnesses Degen and Van-Ty-Smith is

1. This approach is based on Postal Service volume variabilities for mail processing labor costs; the calculation using 100% volume variability can also be found in my workpapers.

an improvement over past practice and, with minor modifications, should be adopted by the Commission. The Postal Service's proposal continues the refinement of mail processing costing methods to more closely align the distribution of mixed mail and overhead costs to mail processing operational characteristics and continues to use the available data on counted mixed mail. The result is an improved distribution of the costs in Cost Segment 3.

- The Postal Service's approach can be implemented while maintaining the Commission's historic practice of attributing 100 percent of mail processing labor costs. The Base Year results of this approach are provided in this testimony.

- The Postal Service's calculation of the costs avoided by DBMC-entry parcels incorrectly includes $9.34 million of costs which are actually incurred by DBMC-entry parcels.

CHAIRMAN GLEIMAN: Mr. Sellick, have you had an opportunity to examine the packet of designated written cross examination that was made available earlier today?

MR. McKEEVER: Mr. Chairman, I'm afraid I dropped the ball on that one. I think there are very few interrogatories, which I can give to Mr. Sellick now.

CHAIRMAN GLEIMAN: I would appreciate if you would do that and we will give him a moment to review them.

[Pause.]

THE WITNESS: Yes, I have.

CHAIRMAN GLEIMAN: If those questions were asked of you today, would your answers be the same as those you previously provided in writing?

THE WITNESS: Yes, they would be.

CHAIRMAN GLEIMAN: That being the case, counsel, if you could provide two copies to the court reporter, I will direct that that material be transcribed into the record and received into evidence.

[Designated Written Cross-Examination of Stephen E. Sellick, UPS-T-2, was received into evidence and transcribed into the record.]

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, DC 20268-0001

Postal Rate and Fee Changes, 2000 Docket No. R2000-1

DESIGNATION OF WRITTEN CROSS-EXAMINATION
OF UNITED PARCEL SERVICE
WITNESS STEPHEN E. SELLICK
(UPS-T-2)

Party	Interrogatories
United States Postal Service	USPS/UPS-T2-1-2

Respectfully submitted,

Cyril J. Pittack
Acting Secretary

INTERROGATORY RESPONSES OF
UNITED PARCEL SERVICE
WITNESS STEPHEN E. SELLICK (T-2)
DESIGNATED AS WRITTEN CROSS-EXAMINATION

Interrogatory	Designating Parties
USPS/UPS-T2-1	USPS
USPS/UPS-T2-2	USPS

**ANSWER OF UNITED PARCEL SERVICE WITNESS SELLICK
TO INTERROGATORY OF
THE UNITED STATES POSTAL SERVICE**

USPS/UPS-T2-1. Please refer to your testimony, UPS-T-2, at page 2, lines 15-18, where you state that you provide "[a] recalculation of base year Cost Segment 3 costs . . . using 100 percent mail processing labor cost variability as proposed by UPS witness Neels (UPS-T-1)."

a. For cost segment 3.1, confirm that by "costs," you specifically mean volume-variable costs by cost pool and subclass. If you do not confirm, please specify the correct meaning of "costs."

b. Confirm that the "costs" you calculate for cost segment 3.1 are consistent with Dr. Neels' proposals. If you do not confirm, please explain fully.

c. Confirm that the "costs" you compute for cost segment 3.1, by cost pool and subclass, can be expressed as the product of total cost for the pool, a volume-variability factor equal to (or nearly equal to) one (or 100 percent), and a distribution key share for the cost pool and subclass derived from IOCS data. If you do not confirm, please provide the expression you believe to be correct.

Response to USPS/UPS-T2-1.

(a) Confirmed.

(b) The costs I calculate for cost segment 3.1 are consistent with Dr. Neels' conclusion that a volume variability of 100 percent is appropriate for mail processing labor costs. See Dr. Neels' response to USPS/UPS-T1-2(a).

(c) Confirmed.

ANSWER OF UNITED PARCEL SERVICE WITNESS SELLICK
TO INTERROGATORY OF THE UNITED STATES POSTAL SERVICE

USPS/UPS-T2-2. Please refer to your testimony, UPS-T-2, at page 5, lines 2-6. You state, "The 'migration' of some costs previously defined at Window Service (and assigned to Cost Segment 3.2) and Administrative (and assigned to Cost Segment 3.3) should be reversed to ensure treatment consistent with the Commission's established practice." Please also refer to your Docket No.R97-1 response to USPS/UPS-T2-17 (Docket No. R97-1, Tr. 26/14222), where you stated that you "have not testified that the existing [pre-Docket No. R97-1] method for distributing administrative costs is more accurate than witness Degen's proposed methodology."

a. Please explain whether it is still the case that, as you stated in Docket No. R97-1, your current testimony, UPS-T-2, does not indicate "that the existing [pre-Docket No. R97-1]method for distributing administrative costs is more accurate than witness Degen's proposed methodology."

b. If your response to part (a) indicates that you now believe that there is a reason (or reasons) to reverse the "migration" of costs, other than to "ensure treatment consistent with the Commission's established practice," please state and describe fully each reason, and provide all related data and/or analysis that supports your position.

Response to USPS/UPS-T2-2.

(a) As in Docket No. R97-1, I have not testified in this case that the existing (pre-Docket No. R97-1) method for distributing administrative and window service costs

is more accurate than the methodology proposed by witnesses Degen and Smith. As in Docket No. R97-1, I reverse the "migration" of certain costs previously defined as Window Service and Administrative in order to preserve the treatment (both for volume variability and in cost distribution) that is consistent with the Commission's established practice.

(b) Not applicable.

CHAIRMAN GLEIMAN: Is there any additional written cross examination for this witness?

If not, that brings us to oral cross examination.

The Postal Service is the only party that has filed a request for oral cross examination of this witness.

Does anyone else care to cross examine the witness?

If not, then Ms. Duchek, you may proceed when you are ready.

MS. DUCHEK: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MS. DUCHEK:

Q Good morning, Mr. Sellick.

A Good morning.

Q I just have a very few questions for you.

Would you please turn to your response to Postal Service Interrogatory 1.

A I have that.

Q And would you take a moment to review subpart (c), please?

A Yes, I have reviewed that.

Q In subpart (c) you confirmed that the costs you compute for Cost Segment 3.1 by cost pool and subclass can be expressed as the product of total cost for the pool of volume variability factor equal to or nearly equal to one or

100 percent and a distribution key share for the cost pool and subclass derived from IOCS data.

I would like you to consider the IOCS-based distribution keys for the cost pools for the MODs Function 1 sorting operations, such things as BCS, OCR, FSM and the like.

Is it your understanding that the distribution key shares by subclass for those MODs Function 1 cost pools are the same as the shares of the dollar weighted handling tallies?

A By dollar weighting, are you referring to the IOCS dollar weighting or the effect after -- for after weighting for the MODS pool dollars?

Q The IOCS.

A I think there's probably an effect of weighting for the MODS pool dollars in there, but I would need to go back and look at that specifically and I don't believe I have specifically focused on that.

Q That's fine. For the MODS Function 1 sorting operation cost pools that we have just been talking about, would the distribution key shares be the same if you simply dropped the not handling distribution step?

A My recollection is that the Postal Service's current programming actually does not count the not handling IOCS tallies in the development of the distribution keys and

it puts those dollars back in or effectively reweights the final distribution for the not handling tallies at a later stage.

Q And do your programs do the same thing?

A My programs -- the way I developed the costs that ultimately end up, that I ultimately derive for Cost Segment 3 are based on both the Postal Service programming modified for 100 percent volume variability as well as the Postal Rate Commission's programming in order to reverse the migration of tallies from Cost Segment 3.1 to 3.2 and 3.3.

Q And do you believe that the distribution key method for those MODS Function 1 sorting operation cost pools is reasonable?

A And by the distribution key method you refer to, that is the Postal Service's method?

Q Your method.

A My method, I believe my method is the same as the Postal Service's method and I do believe it is reasonable, yes.

MS. DUCHEK: Thank you very much. I have no further questions.

CHAIRMAN GLEIMAN: Is there any follow-up?

[No response.]

CHAIRMAN GLEIMAN: Questions from the bench?

[No response.]

CHAIRMAN GLEIMAN: Mr. Sellick, UPS witnesses have made proposals for the treatment of mail processing costs and you have used base year FY '98 data to show the effects of those proposals.

On July 7th in response to Commission Order 1294 the Postal Service provided updated test year results that reflected the use of FY '99 actual data as the base year for cost projection purposes.

We expect additional data including underlying calculations and document to be submitted by the end of next week, by July 21st.

Order 1294 contemplates parties updating their presentations using FY '99 data or using FY '99 data in some manner as they may see fit.

Could we expect for you to update and submit, resubmit your testimony reflecting the cost information presented by the Postal Service for mail processing using FY '99 data as that information comes in and is made available otherwise by the Postal Service?

MR. McKEEVER: Mr. Chairman, may I address that question on behalf of the client?

CHAIRMAN GLEIMAN: I suspect so.

MR. McKEEVER: We do anticipate doing that, Mr. Chairman, barring any unforeseen difficulties and I guess it would probably Mr. Sellick who would do it, although we

frankly haven't given that thought and that is why I just didn't want Mr. Sellick to be on the spot there.

CHAIRMAN GLEIMAN: Okay, thank you. I appreciate that and just so everyone understands, we ask because while Mr. Sellick was on the stand because he did present the effects of the FY '98 data associated with other UPS witnesses' treatment of mail processing costs, as was anticipated by the Order 1294 and by our scheduling adjustments we expect other parties if they so desire to provide updates also.

We are not necessarily looking for more paper, but we are looking for as good a record as we possibly can get and upon which to base any recommended decision we might make.

If there are no follow-ups to the comment and my request just now, and the other questions that were asked by the Postal Service, that brings us to time for redirect, if you would like some time to prepare your witness, Mr. McKeever.

MR. McKEEVER: We have no redirect, Mr. Chairman.

CHAIRMAN GLEIMAN: If there is no redirect, then Mr. Sellick, that completes your testimony here today.

We appreciate your appearance and your contributions to the record, and I am glad to hear you are feeling better and you are excused.

THE WITNESS: Thank you, Mr. Chairman.

[Witness excused.]

CHAIRMAN GLEIMAN: Mr. Richardson, I believe you have our next witness.

MR. RICHARDSON: Thank you, Mr. Chairman.

The Office of the Consumer Advocate calls Dr. J. Edward Smith.

CHAIRMAN GLEIMAN: Now I know I have seen this witness around the place a little bit but I suspect I haven't sworn him in in this proceedings yet.

Whereupon,

J. EDWARD SMITH,

a witness, was called for examination by counsel on behalf of the Office of the Consumer Advocate and, having been duly sworn, was examined and testified as follows:

CHAIRMAN GLEIMAN: Counsel, you may proceed.

DIRECT EXAMINATION

BY MR. RICHARDSON:

Q Would you please state your name for the record?

A My name --

CHAIRMAN GLEIMAN: Could you please turn your mike on?

THE WITNESS: My name is J. Edward Smith.

BY MR. RICHARDSON:

Q And I have just provided you two copies of your

testimony, captioned, "Direct Testimony of J. Edward Smith on behalf of the Office of the Consumer Advocate," styled OCA-T-4.

Do you have those?

A I have it.

Q And that testimony includes revisions filed on June 28th on page 5, lines 5 to 6, which deleted the language "holding delivery points and other nonvolume factors constant," is that correct?

A That is correct.

Q And was this testimony prepared by you or under your direction?

A Yes, it was.

Q And do you have any additions or corrections to your testimony?

A Yes, I do.

On page 6, line 1 of my testimony, please delete the word "to" -- t-o -- on page 6, line 2, add the word "and" after the comma. On page 13, line 8, add the word "adjacent" before "accounting periods". On page 13, line 9, add the word "adjacent" before "accounting periods".

That concludes my revisions.

Q With those corrections do you adopt this as your testimony in this case?

A I do.

MR. RICHARDSON: Mr. Chairman, I will hand two copies of the testimony to the court reporter.

CHAIRMAN GLEIMAN: If you would do so, I will direct that the testimony of Witness Smith be transcribed into the record and entered into evidence.

MR. RICHARDSON: And the revisions are made in the copies.

CHAIRMAN GLEIMAN: The corrections and revisions are included in the copies that were handed to the court reporter. Is that correct?

MR. RICHARDSON: That is correct.

[Direct Testimony of J. Edward Smith, OCA-T-4, was received into evidence and transcribed into the record.]

OCA-T-4
Docket No. R2000-1

DIRECT TESTIMONY

OF

J. EDWARD SMITH

ON BEHALF OF

THE OFFICE OF THE CONSUMER ADVOCATE

MAY 22, 2000

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UNITED STATES OF AMERICA
Before The
POSTAL RATE COMMISSION
WASHINGTON, D.C. 20268-0001

Postal Rate and Fee Changes, 2000) Docket No. R2000-1

DIRECT TESTIMONY OF J. EDWARD SMITH

I. STATEMENT OF QUALIFICATIONS

My name is J. Edward Smith, and I am an econometrician with the Office of the Consumer Advocate of the Postal Rate Commission. I have previously worked in a variety of economic assignments in industrial, academic, consulting, and governmental positions. My experience has focused on the modeling of costs and revenues; economic analysis related to forecasting, project analysis, production and strategic planning; and rates, prices, marketing, and planning analysis. My economics degrees are an A.B. from Hamilton College, and an M.S. and Ph.D. from Purdue University. I have testified approximately 20 times before regulatory commissions, most recently before the Postal Rate Commission on mail processing volume variability in Docket No. R97-1.

II. PURPOSE AND SCOPE OF TESTIMONY

The purpose of my testimony is to evaluate the volume variability analysis for segment 3 mail processing costs presented by Dr. A. Thomas Bozzo.[1] Dr. Bozzo's work was a continuation of Dr. Michael D. Bradley's pioneering work on mail processing costs variability presented in Docket No. R97-1.[2] Volume variability measures the percentage change in cost with respect to the percentage change in volume. Dr. Bozzo measured the variability of cost, measured in hours worked, with respect to changes in the volume of mail, as measured in terms of total pieces handled (TPH) or total pieces fed (TPF).

Traditionally the Commission has assumed that mail processing volume variability is 100 percent. Dr. Bozzo measured variabilities for 10 mail processing activities and found variabilities ranging from 52 percent to 95 percent. Volume variability is an important issue, for segment 3 mail processing costs are in excess of $17 Billion, and the variabilities applied to the various cost pool costs associated with the activity are used to yield a measure of attributable costs. Costs that are not attributable become institutional, requiring that the Commission recommend assignment of the costs to various rates, classes and categories.

[1] Dr. Bozzo's testimony appears in this docket in USPS-T-15, Docket No. R2000-1.

[2] Witness Bradley's testimony appeared in Docket No. R97-1 as USPS-T-14.

My evaluation of Dr. Bozzo's study is based on whether the study meets the following evaluation criteria mentioned by the Commission in Docket No. R97-1:[3]

1. A study should include the development and use of an adequate database, appropriately verified and complete.
2. The study should include a discussion of the modeling approach and how it is consistent with the underlying data.
3. An adequate model and analysis of functional properties is necessary.
4. A correct estimation procedure that is suitable to the estimation needs at hand should be used.
5. Results for econometric equations and alternative econometric analyses should include a full explanation of the values, signs, and other relevant information for the variables.

The Commission has also indicated some of the procedures by which it reviews econometric work:

1. First, the Commission reviews the econometric research using the criteria for evaluation.
2. Second, the Commission reviews the statistical properties of the estimates.
3. Finally, the Commission tries to identify a preferred model to find a result that it can safely rely upon: a result that is stable and robust.

In considering Dr. Bozzo's study I will first review Dr. Bradley's study (for purposes of providing a background and context evaluation). I will then discuss the

[3] Docket No. R97-1, *Opinion and Recommended Decision*, Volume 2, Appendix F at 1.

degree to which Dr. Bozzo's study meets the evaluation criteria. If the research fails to meet the criteria cited, the Commission may decline to accept the conclusions and apply traditional volume variabilities or apply the best of several unsatisfactory alternatives, pending further analysis.

My analysis of the database issue focuses on the scrubbing process and the adequacy of the variables. I address the modeling issues by focusing on the theoretical economic issues as impacting the modeling process. Estimation procedures can include a variety of econometric models. I discuss Dr. Bozzo's choice of the fixed effects model and possible alternatives. I comment on how the evaluation criteria could be reviewed by the Commission. Although Dr. Bozzo's study is a follow-on work to Dr. Bradley's study, many of the problems associated with the original study continue to be found in the revised study. I also comment on how the estimation process could be concluded in a way that could be satisfactory to all participants through the implementation of a working group.

III. INTRODUCTION: VOLUME VARIABILITY OF MAIL PROCESSING COSTS

A. Both Dr. Bradley and Dr. Bozzo Have Presented Analyses of Segment 3 Mail Processing Costs.

Volume variability for mail processing is defined as the percentage change in cost that results from a percentage change in volume. Both Dr. Bradley and Dr. Bozzo measured costs in terms of person hours of segment 3 mail processing effort. Dr. Bradley measured volume in terms of total pieces handled (TPH), and Dr. Bozzo measured volume in terms of total pieces fed (TPF) or in some cases total pieces handled (TPH). The econometrically estimated variabilities of Drs. Bradley's and Bozzo's testimony are presented in Table 1.

The Postal Service operates over 38,000 offices, stations, branches, and processing and distribution centers providing for mail collection, processing and sorting, and delivery. The mail processing plants, where the segment 3 labor costs are generated, prepare the mail, sort the mail to three or five digits, and dispatch the mail to subsequent destinations for additional sorting or distribution. In his testimony in Docket No. R97-1, Dr. Bradley modeled 25 mail processing and handling activities at the major mail processing plants (denoted as MODS facilities) and at Bulk Mail Centers (BMCs).[1] Dr. Bozzo has limited his updated study to the analysis of ten mail sorting activities in the MODS operations. As was well documented in Docket No. R97-1, there was

[4] MODS offices perform the various sorting activities and report costs and volumes through the Management Operating Data System; non-MODS offices tend to be smaller, perform the same types of functions as do MODS offices, but do not report through the Management Operating Data Systems. There are over 300 MODS offices. The number of non-MODS offices is substantially larger. The 21 Bulk Mail Centers (BMCs) process packages and report their data through the Productivity Information Reporting System (PIRS).

significant disagreement with to Dr. Bradley's methodology, including serious problems with data scrubs and data checking, disagreement over the use of the fixed effects estimation approach. There was also concern about the lack of explanatory variables and the relationship of the econometric model to economic theory.

Mail processing costs comprise a significant portion of Postal Service costs. Total costs in the Base Year were $59.6 Billion, with segment 3 costs at $17.6 Billion.[5] According to witness Van-Ty-Smith, the segment 3 costs consist of $12.5 Billion in MODS offices, $0.8 Billion in BMCs, and $4.4 Billion in non-MODS facilities.[6] Dr. Bradley's testimony presented the first comprehensive analysis of volume variability. In his testimony, Dr. Bozzo traced the history of the assumption of 100% volume variability for segment 3 costs. He stated that the era of the assumption of 100 percent volume-variability was based on analysts' judgments by a task force formed in the late 1960's.[7] He testified that methodological, computational, and theoretical constraints had previously limited the econometric analyses of volume variability.

B. The Estimated Volume Variabilities Presented by Dr. Bradley and Dr. Bozzo Differ, but the Variabilities are in General Substantially Less than 100 Percent.

The estimated volume variabilities presented by Dr. Bradley and Dr. Bozzo in Table 1 are generally less than 100 percent.[8] The variabilities are subsequently used

[5] Direct testimony of Karen Meehan, USPS-T-11, Exhibit 11A at 2 and 8.

[6] Direct testimony of Eliane Van-Ty-Smith, USPS-T-17 at 24-25.

[7] USPS-T-15 at 4, lines 7-18.

[8] The discussion is limited to consideration of only those activities for which Dr. Bozzo presented estimated variabilities. In UPS/USPS-T15-9, Dr. Bozzo indicated that he had omitted 24 observations (continued on next page)

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by USPS Witness Van-Ty-Smith in conjunction with Pool Total Cost to compute Pool Volume-Variable Cost. Of the segment 3 Total Pool Cost of $5.4 Billion relevant to the variabilities estimated by Dr. Bozzo, the application of the variabilities developed by Dr. Bradley would lead to the conclusion that $4.4 Billion of cost would be volume variable. In comparison, the use of the variabilities developed by Dr. Bozzo would lead to the conclusion that $4.1 Billion would be volume variable. If the costs were 100 percent volume variable, then $5.4 Billion would be directly assigned.[9] Thus Dr. Bozzo's attribution proposal would reduce attributable costs by $1.3 Billion and increase institutional costs by a similar amount. This transfer of costs between accounting pools is of such a magnitude that it will most certainly influence the rates recommended by the Commission.

from the data set and reran the estimation of variabilities. However, the changes to the results were very minimal. Since the results were not statistically significant, he did not subsequently refile Appendix E. Accordingly, because the changes are *de minimis* and since the original numbers are clearly set forth in his testimony and can be considered statistically accurate, I am working with his written testimony as filed and adopted by him. None of my comments would change based on the information he has presented.

[9] USPS-T-17, Docket No. R2000-1 at 24, (Van-Ty-Smith).

Table 1
Mail Processing Activity

	Variabilities Dr. Bradley	Variabilities Dr. Bozzo	Total Cost $--000	Attributable Cost per Dr. Bradley $--000	Attributable Cost per Dr. Bozzo $--000
BCS Sorting	0.945	0.895	1,043,841	986,430	934,238
OCR Sorting	0.786	0.751	219,070	172,189	164,522
FSM Sorting	0.918	0.817	1,042,369	956,895	851,615
LSM	0.905	0.954	78,765	71,282	75,142
SPBS Non Priority	0.469	0.641	283,275	132,856	181,579
SPBS Priority	0.802	0.641	82,447	66,122	52,849
Manual Flats	0.866	0.772	459,933	398,302	355,068
Manual Letters	0.797	0.735	1,563,963	1,246,479	1,149,513
Manual Parcels	0.395	0.522	60,593	23,934	31,630
Manl. Priority Mail Srtg	0.448	0.522	259,762	116,373	135,596
Cancel. And Mail Prep.	0.654	0.549	295,957	193,556	162,480
Subtotal			5,389,975	4,364,418	4,094,231
Composite Variability				0.81	0.76

C. The Commission Has Identified Criteria and Standards that Can Serve as a Basis for the Evaluation of an Econometric Study.

The Commission discussed in Docket No. R97-1 the standards and criteria for the evaluation of an econometric analysis.[10] The Commission reviewed comments by witnesses Bradley, Neels, and Smith. The relevant criteria for the evaluation of the adequacy of an econometric study are well understood:

1. A study should include the development and use of an adequate database, appropriately verified and complete.
2. The study should include a discussion of the modeling approach and how it is consistent with the underlying data.
3. An adequate model and analysis of functional properties is necessary.

[10] Docket No. R97-1, *Appendices to Opinion and Recommended Decision*, Volume 2, Appendix F.

4. A correct estimation procedure that is suitable to the estimation needs at hand should be used.

5. Results for econometric equations and alternative econometric analyses should include a full explanation of the values, signs, and other relevant information for the variables.

The Commission has also indicated some of the procedures by which it reviews econometric work. First, the Commission reviews the econometric research using the criteria for evaluation. Second, the Commission reviews the statistical properties of the estimates. Finally, the Commission tries to identify a preferred model to find a result that it can safely rely upon; that is, a result that is stable and robust.

IV. DR. BRADLEY'S STUDY

A. A Review of Dr. Bradley's Study Highlights Previous and Potential Problems Associated with the Measurement of Volume Variability.

There were significant data, methodological and estimating problems associated with Dr. Bradley's original study. Unfortunately, these problems have carried over, in general, to Dr. Bozzo's study, so it is appropriate to first examine Dr. Bradley's study in some detail. Dr. Bradley's testimony presented two major conclusions that differed from the traditional assumptions about volume variability:

- There are differences in volume variabilities for mail processing across activities; and
- The estimation of mail processing variabilities generally produces a number less than 100 percent.

Both UPS witness Neels and I disputed the results, focusing on the variety of issues related to databases, variables, model specification, and other factors.[11] Dr. Bradley's estimation of mail processing was performed at the level of the individual mail processing activity. Table 2 summarizes Dr. Bradley's 25 estimated mail processing variabilities. Based on total mail processing labor costs disaggregated into activity-specific cost pools, Dr. Bradley estimated cost elasticities by modeling hours of labor (which he designated as a measure of cost) as a function of total pieces handled (TPH),

[11] UPS-T-1, Docket No. R97-1 (Neels); OCA-T-600, Docket No. R97-1 (Smith).

deemed to be a measure of output.[12] Additional explanatory variables included a segmented time trend, and a manual ratio (computed as the ratio of manual letter TPH to the sum of all manual letter TPH, mechanized letter TPH, and automated letter TPH). He also used seasonal dummy variables to denote the accounting periods to account for the ebbs and flows of mail throughout the year.

[12] This summary of Dr. Bradley's work is not comprehensive or complete, focusing only on the essential highlights of his work. For example, Registry and Encoding were separately estimated.

Table 2
Summary of Dr. Bradley's Variabilities

Activity	Variabilities Estimated by Dr. Bradley	Comparable Activities Estimated on the Basis of Proxies	Proxy Variability
MODS Offices		*General Support Activities*	
BCS Sorting	0.945	Mail Processing Support	System Variability
OCR Sorting	0.786	Miscellaneous Processing	System Variability
LSM Sorting	0.905	Empty equipment	System Variability
FSM Sorting	0.918	Damaged Parcel Rewrap	System Variability
Manual Letter Sorting	0.797	Piece Handlings Unavailable	
Manual Flat Sorting	0.866	Mechanized Sack Sorting	BMC Mech. SS
Manual Parcel Sorting	0.395	Mechanized Parcel Sorting	BMC Mech. PS
Manual Priority Mail Sorting	0.448	Bulk Presort	Opening Units
SPBS Priority Mail Sorting	0.802	Manual Sack sorting	BMC Platform
SPBS Non Priority Mail Sorting	0.469	Mailgram Sorting	Manual Ltr Sorting
Cancellation and Mail Prep	0.654	Express Mail Sorting	Manual Pri. Sorting
MODS Allied Activities		ACDCS (Scanning)	Pouching
Opening Pref Mail	0.720	Business Mail Reply	Manual Ltr Sorting
Opening Bulk Business Mail	0.741	*Customer Service Activities*	
Pouching	0.829	Automated Sorting/Stations	OCR & BCS
Platform	0.726	Mechanized Sorting/Stations	LSM and FSM Activities
Remote Encoding	1.000	Manual Sorting/Stations	Manl Lrt. and Manl. Flat
Registry	0.150	Box Section Sorting/Stations	Manl Lrt. and Manl. Flat
		Express Mail Sorting,CSOMan	Manual Pri. Sorting
BMC Offices		Special Service Activities	Registry Activity
Sack Sorting	0.991	Misc Activities at CSO	Registry Activity
Primary Parcel Sorting	0.854	Mail Markup and Forwarding.	Avg. Mech. Activities
Secondary Parcel Sorting	0.969	Business Mail Entry	Platform Activity
Irregular Parcel Post	0.754		
Sack Opening Unit	0.718		
Non Machinable Outsides	0.672		
BMC Allied Activities			
Platform	0.533		
Floor Labor	0.605		

Data Sources
USPS-T-14, Docket No. R97-1, page 9.

B. Dr. Bradley's Study Was Criticized as Being of a Short-Run Nature Due to the Use of 4-Week Accounting Periods Coupled with the Lack of Consideration of Capital and Investment.

The Commission has indicated that the postal rate cycle, the period of time over which postal rates are fixed, is the appropriate time period for the purposes of

determining the relationship between costs and mail volume.[13] In contrast, Dr. Bradley's study focused on 4 week accounting periods along with some consideration of longer time frames. There was no longer-run consideration of costs as related to the facility expansion path,[14] which is the relevant approach to the measurement of costs. The Commission indicated that the cyclical nature of mail volume over a rate cycle implied that the relationship between input use and mail volume across adjacent accounting periods will reflect, primarily, seasonal variation in mail volume. Large changes in volume across adjacent accounting periods can occur with little change in labor hours across adjacent accounting periods, leading to a low variability estimate. I will subsequently show that Dr. Bozzo's study is also short run: the use of quarterly data, and even a "same period last year" analysis, does not change its short-run nature.

C. The Database for Dr. Bradley's Study Was Unreliable.

The MODS and PIRS databases provided observations by accounting period (AP) and site for the years 1988-1996. Dr. Bradley scrubbed the data for accuracy, continuity, and adequacy, resulting in the establishment of a database consisting of data by site, accounting periods, and activities. The data sets were large, with up to 25,000 observations or more.[15] Although the database was large when measured in terms of quantity of data, the major relevant data generated from a field site and used in

[13] Docket No. R97-1, *Opinion and Recommended Decision*, Volume 2, Appendix F at 13.

[14] The expansion path is the equilibrium point of costs as facility size changes.

[15] Data sets were typically in the 17,000-25,000 observations range after scrubbing. A few data sets were significantly smaller.

the study (exclusive of information relating to facility identification, activity type, and time periods) consisted only of two variables: hours and TPH. Furthermore, the accuracy of the MODS data was substantially criticized. Dr. Bradley concluded that extensive data scrubbing was necessary. Substantial argument concerning the deficiencies of Dr. Bradley's scrubbing process generally focused on the elimination of relevant data. The scrubbing process appeared to be largely statistically based; there did not appear to have been a detailed review of the data with field personnel. Information on capital, facility characteristics and a variety of other data relevant to the analysis of mail processing were not included in the data set.

D. Dr. Bradley's Fixed Effects Approach Was Criticized by the Commission

Dr. Bradley estimated the relationship between hours and TPH with a translog function, using a fixed effects approach for the econometric estimation. In the analysis of a specific activity, he asserted that the fixed effects intercept was adequate to account for differences between facilities.[16] In selecting the estimation method for the translog function, Dr. Bradley considered three estimation approaches as possible choices:

- **Pooled:** If this approach had been used, then according to Dr. Bradley the approach would have been based on the assumption that facility-specific

[16] An issue that was not considered was whether some degree of segmentation into data subsets for the facilities would have improved the estimation process. Instead, Dr. Bradley assumed that the fixed effects approach would account for the differences.

characteristics were not important.[17] Dr. Bradley indicated that he rejected the pooled model approach for this reason, relying on the Gauss-Newton Regression (GNR). He stated that in every case the GNR tests indicated that the facility-specific effects were important and that both the pooled and the cross sectional models were not appropriate.

- **Fixed Effects:** The reasons cited for the differences in hours between facilities included the age of the facility, the quality of the local work force, and the quality of the mail that the facility must process.[18] Dr. Bradley indicated that his experience in studying mail-processing activities strongly suggested that there were significant non-volume variations across facilities as indicated by a Gauss-Newton Regression.[19] The fixed effects approach attempts to capture differences between facilities not captured by the variables in the equations, as measured by the intercept. However, the approach works only in measuring fixed effects at a site when the fixed effects never change.
- **Random Effects:** Dr. Bradley rejected the random effects model, and no participating party advocated such a model. Such an approach would be based on the assumption that the facility specific characteristics that cause productivity to vary across facilities are non-stochastic.

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[17] To the degree that data modeling the characteristics of a facility could be developed, such data could be included in the study as exogenous variables.

[18] USPS-T-14, Docket No. R97-1 at 40, lines 1 through 4.

[19] This is a key point. Subsequent testimony will disagree with some of the findings, and this has a key impact on conclusions. Dr. Bozzo also used a fixed effects approach. He appears to have provided inadequate explanation and response to the Commission's comments on fixed effects.

The Commission found that the fixed effects in Dr. Bradley's study may represent effects that are both related and unrelated to postal volumes; for example, the size of the facilities, included in the fixed effects, can be a function of the volume of mail. Accordingly, the Commission found that if the fixed effects were volume variable, then the computed volume variabilities were incorrect. Dr. Bozzo has again used the fixed effects estimating procedure.

E. Dr. Bradley Extrapolated His Econometric Results to a Number of Other Activities.

Dr. Bradley performed the analysis of mail sortation for a limited number of activities at MODS offices and BMCs. The results did not entirely meet witness Degen's needs, for Mr. Degen was required to form cost pools for certain activities that had no recorded workload measures. Since workload measures were unavailable, variabilities could not be measured econometrically. Therefore, Dr. Bradley used activities for which he had computed variabilities as proxies for activities for which he had been unable to compute variabilities. Finally, he extrapolated the results for variabilities for mail handling activities to non-MODS offices.[20] Dr. Bradley's conclusion that cost variabilities for mail processing activities are less than one was a major change from the traditional 100 percent assumption. He commented on his understanding of why variabilities are less than one:

- the existence of relatively fixed functions within the activity,

[20] USPS-T-14, Docket No. R97-1, Section V at 86-90.

- the division and specialization of labor (leading to the conclusion that manual activities should have increased efficiency), and
- technological change, resulting in machine paced activities operated at the same speed having a high variability.[21]

He indicated that gateway activities (*e.g.*, OCR and platform) would run at both low and high levels depending on the time of day. Finally, he assumed backstop activities would tend to have lower variabilities.[22]

[21] USPS-T-14, Docket No. R97-1 at 56.

[22] USPS-T-14, Docket No. R97-1 at 58.

V. DR. BOZZO'S VOLUME VARIABILITY STUDY

A. Dr. Bozzo's Revisions of 10 of the 25 Mail Processing Activities Modeled by Dr. Bradley Continue to Have Deficiencies.

Dr. Bozzo made a number of changes to Dr. Bradley's methodology; however, the approach continues to be fatally flawed.

(1) Dr. Bozzo's approach continues the short run approach to estimation. In the previous study, the mail processing elasticities only reflected the response of costs to volume changes on an eight weeks basis. Dr. Bozzo has modified the data to a quarterly basis, but the analysis is still based on short run costs, measuring changes in cost with respect to volume but not adequately addressing issues of capacity utilization and investment--which can have a significant impact on longer-run costs through their effects on facility expansion. Movements along a facility expansion path in response to volume changes will occur when capital and labor vary on a longer-term basis as a result of the Postal Service's investment plans. The expansion path is the hyperplane that should be measured, not the short run hours/TPF relationship.

(2) There is less data scrubbing, but the rules for the data scrubbing are not significantly better. There was apparently no discussion with field based personnel of the data on a site by site basis for data items suspect (unless required to answer an interrogatory).

(3) Microeconomic theory related to cost, production, and factor demand functions is interspersed with comments on non-cost minimization, homotheticity, and a variety of other sophisticated concepts. However, the theory is not presented in an

organized form. There appears to be a number of theoretical errors. This is not a trivial issue. The treatment of capital could potentially have a significant effect on the conclusions, but it is not clear whether capital is an exogenous or endogenous variable and whether some type of reduced form simultaneous equations system is needed.

(4) Variables assumed non-volume variable that are actually volume variable: the manual ratio is still present, and capital is treated as exogenous when it may in fact be endogenous.

(5) The economic theory does not appear to be well tied to the mail processing field realities. There is a major difference between the model estimated by Dr. Bozzo and the alternative model that can be developed from Mr. Degen's testimony.

(6) Dr. Bozzo has incorporated capital in the analysis; however, the actual measurement of capital appears to be inaccurate or inapplicable.

(7) The econometric methodology continues to be fixed effects, even though the major deficiencies of this approach were discussed in detail in the previous case.

(8) There has been some introduction of additional variables, for example, the consideration of networks. However, a potentially key variable--capacity utilization--is missing. The previously discredited manual ratio continues to be used.

B. Dr. Bozzo's Study Needs Substantial Work for Completion.

The analysis of mail processing facilities is a complex, intellectually challenging issue. The volume variability analysis has consumed major resources, apparently up to five years for the initial work presented by Dr. Bradley, and another five person years of

work for the work presented by Dr. Bozzo, which was, however, performed on a much more limited scope of activities. Possibly another five person years of effort would be required to complete the work.

Furthermore, Dr. Bozzo has only estimated 10 of the previously estimated 25 variabilities that Dr. Bradley estimated. In addition there are a large number of MODS and non-MODS variabilities which have not yet been estimated. Finally, there are significant methodological issues in dispute over the work.

Accordingly, it is important that volume variability issues be thoroughly and additionally explored before being adopted by the Commission. The current estimators appear to be tentative. As can be seen from Table 1, the proposed variabilities have actually changed over the short course of several years, apparently due to changes in data scrubbing and methodological changes.

I recognize that the tone of my testimony is negative, as related to both the testimony of Dr. Bradley and the follow-on work of Dr. Bozzo. Although it would have been satisfying to present new econometric methodologies and economic theories carried to their ultimate conclusions, I have found that such an accomplishment is not possible within a four month time frame--particularly since such an effort would apparently require in excess of five person years of work. Accordingly, I am recommending to the Commission the following approach to a resolution of the volume variability issues.

C. The Commission Should Recommend Establishment of a Working Group to Resolve the Mail Processing Issues.

The resolution of the volume variability issue has major cost allocation implications, and extensions and improvements to the work appear likely to require a significant amount of additional effort. That effort can best be accomplished in the atmosphere of a working group in which technical issues can be discussed and resolved in a non-adversarial atmosphere. In this way, I believe many of the more technical issues regarding the handling of the data and variables and the estimators could be substantially narrowed. Accordingly, the Commission may wish to consider recommending that the Postal Service establish an ongoing working group of interested intervernors and other interested groups for the review, analysis, and conclusion of the study.

VI. DR. BOZZO'S METHODOLOGY IS EVALUATED UNDER ESTABLISHED CRITERIA

I have listed, above, the several deficiencies that I conclude are present in the USPS modeling of mail processing variabilities. Standing alone, without placing them in the context of an overall evaluation of the methodology in a structured way, it may be difficult for the Commission to weigh the relative significance of individual issues in a laundry list of problems in the context of a full-blown analysis. That is, certain issues may appear to be concerned with minutia, of little overall significance to the resolution of the problem. As the Commission has stated, "The blueprint for a successful application of econometrics is well-understood...."[23] An econometric study is judged by whether it successfully meets generally established criteria. I am therefore presenting my testimony in a format discussing five important criteria similar to that which the Commission recognized as appropriate for evaluating econometric methodology. In measuring Dr. Bozzo's study against these criteria, I have found the study deficient in important respects in each of the areas. The following sections present an evaluation of Dr. Bozzo's work in terms of the criteria discussed in Appendix F of the Commission's opinion in Docket No. R97-1.

[23] Docket No. R97-1, *Opinion and Recommended Decision*, Volume 2, Appendix F at 1.

A. Criterion 1: A Study Should Include the Development and Use of an Adequate Database, Appropriately Verified and Complete.

1. The database was not adequately examined and verified for accuracy.

A review of the data scrubbing issues associated with Dr. Bradley's work provides some insight into the inadequacy of the underlying databases for both studies. The Commission concluded that the scrubs were excessive because they eliminated usable data and ineffective because the rules applied in the scrubs did not reliably identify erroneous observations. The Commission concluded that the scrubs produced a selection bias by unduly affecting the estimated variabilities.[24] The Commission indicated that, "It is the Commission's understanding that good econometric practice requires that when data are removed from a sample, they are removed because the econometrician has investigated and found good cause for believing that the data are erroneous."[25]

Dr. Bradley's initial data review appears to have been based on the application of statistical analysis. The differences between Dr. Bradley's data set and the data set used in the current study are actually quite minor. Quarterly data are used in the current study in lieu of four week accounting period data in order to smooth out inaccuracies; the rejection criteria are relaxed; and the overall time period is changed due to a major data discontinuity at the time of the Postal reorganization.

[24] *Id. at* 31.

[25] *Id. at* 28.

The underlying data bases from which Dr. Bradley obtained the data for the study are unreliable. As the Commission indicated, "Even without the report of the Inspection Service, a conscientious examination of the data sets would disclose unmistakable internal evidence of serious errors."[26] The data set used in the current study apparently continues to be drawn from the same data source and appears to have been initially subjected to minimal actual field verification. Field level data verification appears to be required to provide a sound basis for the analysis. Several of Dr. Bozzo's responses to interrogatories appear to focus on data checking "after the fact." One response discussed data errors due to commingling of manual and SPBS parcels, and a gap in the manual priority volume reporting at a site.[27] The response also discussed data questions related to 13 sites, largely involving reclassifications of facilities or the introduction of new facilities. This is the type of data verification that should be performed prior to beginning the analysis.

In view of the known deficiencies of the MODS data base, as well as the changing nature of the data as verified by questions raised in interrogatories, I conclude that the database should have been subjected to substantial field verification for accuracy and completeness. Such verification could be performed initially on a sampling basis to verify the degree of accuracy. Follow-up efforts would involve contact with the people responsible for data collection to determine data accuracy as well as to gather information on site specific circumstances. The actual examination and

[26] *Id. at* 26.

[27] UPS/USPS-T15-13, Tr. 15/6387-8.

verification of data from sites with input from field personnel does not appear to have been performed to any significant degree.

Statistical data scrubbing is not an adequate substitute for on-site data verification. A proper approach to the verification of data is to select a sample of data items and perform a field check to determine reliability. Procedures must then be implemented to upgrade the data set if the data prove to be unreliable.

In performing the data review, there was no discussion of the possible segmentation of the database into subsets of similar sites to facilitate accurate comparisons. Clusters of sites could have been considered by size, degree of technology and automation (thereby avoiding the meaningless manual ratio), the clustering of processing activities, and probably other classifications. By grouping similar sites, much of the fixed effects problem identified by the Commission could be avoided. A smaller number of sites based on clustering might produce less precise statistical estimates; however, the tradeoff might be increased accuracy.

An example of the importance of the data issue was provided in an interrogatory response that indicated there were large upward revisions to the manual parcel and priority variabilities due largely to the application of tighter sample selection rules.[28] It is reasonable to conclude that the study is deficient in terms of its underlying database, and that the conclusions may be tentative, depending significantly on data scrubbing.

[28] AAP/USPS-T15-5, Tr. 15/6227.

2. Changes in postal investment subjected the investment data trends to changes during 1994-96; previous data may be unrepresentative of operating conditions in the forthcoming rate effective time period.

The history of Postal Service investments in mail processing equipment is summarized in Table 3 and the accompanying graph.[29] Table 3 indicates that the Postal Service's investment in mail processing equipment changed during 1994-1996. It remained, on average, at a level much higher than the level of investment in the three previous years, 1993 through 1995. Thus, the investment expenditures in the early years included in Dr. Bozzo's study differ significantly from the investment expenditures for the later years. Moreover, plans for future Postal Service investments are delineated in the annual investment capital plans,[30] and the Postal Service continues to project a high level of investment in mail processing equipment. It therefore appears that part of the data relied upon by Dr. Bozzo is not representative of the period for which the rates will be in effect. According to Dr. Bozzo, the potential impact of unrepresentative data is important:

> My main motivation for employing data over a shorter time period was the desire to balance the potentially competing aims of efficient estimation and accurate estimation of the labor demand functions....However, extending the sample period back in time does not hold other things equal. It raises the possibility of introducing non-sampling errors in the estimates to the extent the earlier data are unrepresentative of current operations."[31]

[29] ANM/USPS-T9-47-49, Tr. 2/199-202.

[30] ANM/USPS-T10-17, Tr. 2/408.

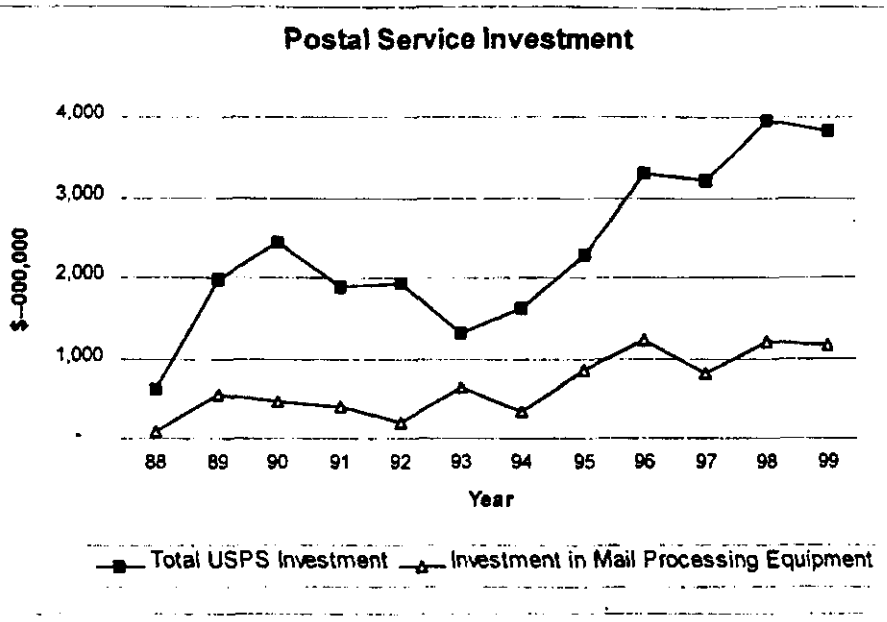
[31] OCA/USPS-T15-6, Tr. 15/6298.

Fluctuations in the investment data may make them unrepresentative for purposes of analysis. The investment data will impact the values for capital, possibly making earlier data irrelevant to current practices. The investment data are plotted in the following graph derived from Table 3.

Table 3
Postal Service Investment--1988-1999

Year	Total Postal Service Investment $--000,000	Mail Processing Equipment Investment $--000,000
88	623.9	91.9
89	1,987.5	560.0
90	2,436.4	466.4
91	1,883.1	397.7
92	1,924.8	201.1
93	1,309.6	634.5
94	1,635.5	326.9
95	2,284.9	866.8
96	3,306.9	1,220.5
97	3,202.6	808.2
98	3,947.0	1,204.1
99	3,817.3	1,158.1

Source: ANM/USPS-T9-47-49, Attachment



Accordingly, in examining the Hours/TPF relationships, Dr. Bozzo has an underlying investment series that may be unrepresentative of current operations. The changing nature of segment 3 data for segment 3 hours and total mail is shown on an aggregate basis in Table 4 in terms of payroll hours for segment 3 and total mail. There was a major change in trend in the 1997 time frame. Dr. Bradley treated a similar discontinuity with a dummy variable, but Dr. Bozzo has not addressed the impact on his conclusions of the changing trends.

Table 4
Mail Volume and Segment 3 Hours

Year	Volume Total All Mail	Cost Segment 3 Payroll Hours Work (Clerks & Mailhandlers)
1999	201,576,279	694,845,627
1998	196,904,690	694,686,240
1997	190,888,059	693,945,735
1996	183,439,474	680,293,834
1995	179,932,615	667,448,113
1994	177,177,362	654,575,064
1993	170,312,972	617,449,610
1992	165,654,138	615,041,369
1991	165,057,806	631,555,134
1990	165,502,505	633,771,319
1989	161,603,263	641,645,471
1988	160,953,625	638,779,872
1987	153,152,758	626,078,466
1986	146,578,077	603,546,949
1985	140,097,956	582,351,682
1984	131,544,622	560,064,472
1983	118,476,588	524,770,256
1982	113,121,664	518,265,011
1981	110,130,400	525,640,282
1980	116,451,141	528,221,756
1979	99,828,883	527,506,828
1978	96,913,154	517,087,887

3. The continued use of the manual ratio is undesirable.

Dr. Bozzo continues to use the manual ratio as a measure of the degree of automation. Recognizing that the manual ratio can be affected by volume, he nevertheless maintains that the mail processing technology rather than mail volumes determine the manual ratio.[32] He maintains that a computed manual ratio number is comparable from site to site, even though the size of the sites may range from small to

[32] USPS-T15 at 24, line 11.

large.[33] However, he also admits that to the extent network characteristics affect local mail flows and automation usage, they may affect the manual ratio variable.[34] Finally, he appears to believe that the size of the mail processing facility as measured in TPF would not affect the manual ratio, *other things equal*, but since the TPF are likely to be related to network characteristics one would expect that other things are not, in fact, equal.[35]

In my view, use of the manual ratio in the analysis is inappropriate. Other measures of the degree of automation for an activity need to be developed; for example, the capacity and numbers of machines for an activity at a site could be used as a measurement of automation capability.

4. The QICAP variable has not been demonstrated as appropriate.

(a) The presentation of the variable QICAP, used to measure capital usage at each facility, is inadequate.

The regression equations, as outlined on pages 117 and 118 of Dr. Bozzo's testimony, use a variable denoted as "CAP". Apparently, this is the QICAP variable referenced in LR-I-107.[36] QICAP is denoted as a quantity index for facility capital. The value of the capital items at a facility are depreciated, adjusted for inflation, and transformed into a capital flow. The details of the procedure were apparently presented

[33] OCA/USPS-T15-8, Tr. 15/6301.

[34] OCA/USPS-T15-11, Tr. 15/6305.

[35] OCA/USPS-T15-15, Tr. 15/6309.

[36] USPS-LR-I-107, Docket No. R2000-1.

in the previous case.[37] The derivation of QICAP was discussed during an informal technical conference with Dr. Bozzo and was also the subject of interrogatories. However, the presentation of the derivation of QICAP is inadequate; QICAP is not even discussed in Dr. Bozzo's testimony, and it is impossible to determine the relevance of previously presented information to the current use of QICAP. There are a number of deficiencies associated with the QICAP variable.

(b) The variable QICAP appears to be deficient from a computational viewpoint.

The use of the variable QICAP in a regression equation might yield spurious results. Dr. Bozzo indicates that the QICAP numbers are not strictly additive from site to site.[38] He indicates that they are approximately additive, but that additional computations need to be made. Accordingly, Dr. Bozzo has not demonstrated that QICAP is a cardinal number although on a practical basis it may be possible to perform sufficient computations to adjust the number for adequacy under certain circumstances. Regression equations are based on the addition and multiplication of numbers in the matrices that define the regression equation. Numbers that yield inaccurate results when added or multiplied may result in the wrong conclusions.[39] Accordingly, there may be a mathematical problem in using QICAP in a regression equation.

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37 USPS-LR-H-272, Docket No. R97-1.

38 OCA/USPS-T15-45, Tr. 15/6341-2.

39 A very simple example will illustrate this: if the price of food rises by 3percent and the price of clothing rises by 2 percent, then prices are not up by 5 percent.

(c) QICAP is available on a facility basis, not on an activity level basis; this may lead to meaningless results when including capital investment in the study.

The variable QICAP is available only on a facility basis. QICAP is a measure of the capital used at a facility rather than for an activity. For example, at a site with various types of automated or mechanized operations (*e.g.*, cancellation, bar code sorters, optical character readers) and manual operations (*e.g.*, manual sorting of parcels or letters), only one number is available: the overall amount of capital used at the facility. Furthermore, capital used in activities that are not even being modeled is also included in QICAP as long as the capital is present at the facility. Accordingly, the modeling of any activity at a facility is based on the overall usage of capital at the facility, regardless of whether the particular activity is capital intensive or uses capital minimally.

Dr. Bozzo essentially maintains that the QICAP variable in its current state is the best estimate of capital usage available. He maintains that it is not possible to classify all equipment at a site by cost pool. According to Dr. Bozzo, the resulting cost pool level capital measures which would result from segmenting available data by activity cost pool would not represent the cost pools of capital *per se,* but rather, they would represent the portion of the cost pools capital that could be associated with the cost pool using the Property Code Number (PCN). He further notes that data on facility space, which he alleges to be an important non-equipment component of a hypothetical

cost pool capital index, are not available by cost pool.[40] He further maintains that it is not obvious that a cost-pool-level capital measure would be the sole--or even the primary economically relevant measure of capital. He has indicated that, in his view, the effect of including the facility capital index is to capture the fixed effect on labor demand in a given cost pool of the capital services employed in that cost pool as well as the capital services employed in other pools.

An example illustrates the deficiency of QICAP. Witness Kingsley has discussed the installation of Flat Sorting Machines in detail. Such machines will provide a higher level of automation than currently exists. Apparently machines of significantly less capital value, sophistication, and capability are currently in use at the mail processing facilities. Based on Mr. Degen's and Ms. Kingsley's testimonies, it is clear that most major mail processing facilities have sophisticated, high capability Optical Character Reader (OCR) and Bar Code Sorter (BCS) machines. Accordingly, in any analysis of FSM's at a given site, the QICAP variable appears likely to reflect to a disproportionate degree the investments in OCR and BCS machines. In analyzing the flat sorting activity, one would be using a value for capital strongly influenced by other activities.

A further example demonstrates a potentially greater mismatch, if instead of considering flat sorting machines, one considers the manual casing of mail. Regardless of how sophisticated the automated activities of the plant are, it does not appear that

[40] Although square feet of space clearly cost money, Dr. Bozzo has not explained how the associated space affects hours of labor.

this investment will have much impact on the manual casing of letters, a technology in existence for many years.

(d) Some of Dr. Bozzo's computations illustrate the dubious nature of the variable QICAP.

Turning to Table 6 of Dr. Bozzo's testimony,[41] one can compare the capital elasticity of manual flats and manual letters with that of a bar code sorter. The capital elasticities for the manual operations are greater than the capital elasticities for the OCR. The conclusions that one could draw from Table 6 do not comport with reality, and there is inadequate discussion of the results. At the very least, some extensive discussion of the results should be provided. For purposes of analysis, it appears that capital data are needed at the activity level if activities are to be analyzed. A statement that such data are not available does not suffice as a reason for its non-inclusion.

(e) The approach to equipment depreciation and the failure to consider maintenance efforts also renders QICAP meaningless.

The Postal Service depreciation rates, by equipment category, are as follows: mail processing equipment, 8.3 percent per year; postal support equipment, 11.5 percent per year; and buildings, 2.33 percent per year.[42] QICAP is used as a measure of capital for mail processing machines. Dr. Bozzo asserts that from an economic viewpoint the machines have useful value consistent with the geometric perpetual

[41] USPS-T-15 at 119.

[42] OCA/USPS-T15-47, Tr. 15/6344-5.

inventory equation.[43] Dr. Bozzo has justified the accelerated depreciation rate as being based on internal Postal Service studies; however, these are internal studies based on previous, historical experience. The modern equipment that is currently being installed may be quite different from that installed previously, rendering the historical depreciation rates meaningless. In addition, the depreciation rates being used appear to be based on accounting data rather than operational reality: it is difficult to imagine that an FSM is 8.3 percent less productive after its first year on the job.

In an industrial setting, various vintages of the same machine may be present on the factory floor. Regardless of the level of depreciation accrued by the accountants, the machines will typically have the same level of productivity when operating. The major difference (if any) between the machines is that the older machines may require increased maintenance. From the viewpoint of activities in factories, there will usually be a relationship between hours of operation and levels of maintenance based on the age (*i.e.*, depreciation) of the machinery after a few years. Older machines will maintain their operability as they depreciate through increased maintenance. Accordingly, in comparing vintages of capital it is necessary simultaneously to consider maintenance: maintenance hours, operating hours, and capital equipment are strongly interrelated.

However, no management or maintenance time is included as a variable in the regression analysis.[44] Even assuming QICAP is correct from a depreciation point of view, one would need to note that operating and maintenance labor is carried in

[43] OCA/USPS-T15-49, Tr. 15/6349.

[44] OCA/USPS-T15-63, Tr. 15/6376.

another account but is a complement to machine operating time. Accordingly, the study is seriously deficient without consideration of management and maintenance hours.

5. Capacity utilization is another potentially important variable missing from Dr. Bozzo's database.

It is well known that the output, efficiency, and resource requirements of factory operations are strongly related to capacity utilization. For example, it is common knowledge that investors, economists, and the financial press examine factory capacity utilization as a signal of price, employment, and other economic changes. For an industrial style process, capacity utilization is a key number.[45] Dr. Bozzo's study has no measure of capacity utilization, and this is a potentially serious deficiency. Furthermore, there is no reason to believe that TPF or TPH are approximations of capacity utilization. Dr. Bozzo treats them as an output, so while they may be correlated with capacity under certain circumstances, they do not measure capacity. It should also be obvious that capacity utilization is not measured as a fixed effect. Accordingly, the lack of a capacity utilization variable is a major deficiency of the model.

6. In conclusion, there are serious data problems underlying the foundation of the study.

The data problems associated with the current study include data scrubbing/non verification, problems with specific variables (QICAP, manual ratio), the potentially unrepresentative nature of the data series, and issues associated with omitted

[45] If capacity utilization were at 100 percent, it would still be possible to increase production in the short run through extraordinary measures, and in the longer run through the addition of machines and/or plants.

variables. Dr. Bozzo's database does not appear to meet the standards of reliability. Finally, a potentially key variable, capacity utilization, is missing.

B. Criterion 2: Models Should Be Derived from the Appropriate Economic Theory and Should Fit Correctly Within any System that Applies Them.

1. The economic assumptions and theory for the current study are not clear; in many cases they appear to be wrong.

Both Dr. Bradley and Dr. Bozzo used translog functions to estimate the relationship of labor hours and TPF or TPH. Dr. Bozzo indicated that "....I find that Dr. Bradley's lack of stated cost theoretic underpinnings for his mail processing study added unnecessary confusion to the Docket."[46] A similar statement also applies to the work that Dr. Bozzo has presented. The econometric testimony in this proceeding is replete with references to advanced microeconomic price theory. However, the underlying microeconomics are interspersed throughout the presentation. Accordingly, it is difficult to follow the logical progression of the derivation, properties, and logic of the analysis and the functions being estimated.

On a preliminary basis I have identified the following problems, which will be considered in the following sections:

- Statement of the function being estimated;
- Selection of variables to be estimated;
- Treatment of Network issues;
- Variables: Manual Ratio and QICAP;

[46] USPS-T-15 at 44, lines 18-20.

- Time Frame: Short run and long run; and
- Cost minimization

2. Dr. Bozzo and Dr. Bradley do not agree on the type of function being estimated; much improvement in the presentation of the labor demand function is needed.

Dr. Bradley estimated the relationship of hours and TPH, which he denoted as a cost function. Dr. Bozzo defines the relationship as a labor demand function. Both economists are estimating what is essentially the same function. The function obviously cannot be both a cost function and a labor demand function. This confusion highlights the absence of a clear economic exposition of economic theory and assumptions.

Dr. Bozzo indicates that his labor demand function is actually a conditional labor demand function that can be derived from a partial equilibrium model of cost minimization or from a generalized non-cost minimization model. However, he performs neither derivation, and the reader and ultimately the Commission are left with the problem of constructing the theories underlying his testimony. [47]

The Commission's comment in discussing Dr. Bradley's cost function is again applicable. The Commission said that, "Given the arbitrary nature of witness Bradley's cost equation, the Commission's criticism in Docket No. R87-1 that 'an imaginative analyst can obtain almost any desired variability estimate by carefully choosing the variables and the time period to be used in the analysis' seems to apply."[48] Dr. Bozzo's

[47] OCA/USPS-T-15-56, Tr. 15/6358-9.

[48] Docket No. R97-1, *Appendices to Opinion and Recommended Decision*, Volume 2, at 8.

conditional labor demand function is open to similar criticism. First, a labor demand function is defined as $x_j=x_j(w_1, w_2..w_n, p)$ for $j = 1...n$. For estimating purposes, appropriate derivations from the production function would yield an estimating equation, specified in terms of the production function variables. As indicated by Dr. Bozzo, the mathematical relationship between the cost function and labor demand function, known as Shepard's lemma, provides that if the cost function is locally differentiable, the labor demand function is equal to the partial derivative of the cost function with respect to the wage.[49] It is possible that the Postal Service operates under conditions in which Shephard's lemma does not apply. Dr. Bozzo responded to a question about "cases of non-equilibrium" conditions under which his theory is substantiated:

> To the extent that the term refers to situations under which the relevant theoretical conditions of the cost minimizing (or generalized non-cost minimizing) model do not hold, my results would still represent an empirical analysis of the Postal Service's demand for labor in mail processing operations, but the mathematical relationship ("Shepard's lemma") between the labor demand and cost functions would not necessarily hold.[50]

Dr. Bozzo did not fully explain the applicability of his labor demand function. Dr. Bozzo has also indicated that he included variables to bridge the gap between generic theory and operational reality. He indicated that the labor demand models used, and the cost functions implicitly associated with them, employ additional variables for that reason.[51] In order to verify that Dr. Bozzo's approach is grounded in economic theory,

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[49] OCA/USPS-T-15-17, Tr. 15/6311-2.

[50] OCA/USPS-T-15-59(a), Tr. 15/6365-6.

[51] OCA/USPS-T-15-56(c), Tr. 15/6358-9.

the Commission needs an explicit derivation of the labor demand function, an additional analysis of the endogenous or exogenous nature of investment, and a discussion of the impact on labor demand under conditions of monopsony, monopoly, and imperfect competition. This would alleviate concerns about variables in the equations and whether additional equations were needed, particularly in view of Dr. Bozzo's comments about exogenous and endogenous variables.

3. Dr. Bozzo's study is short run. The proper approach for examining postal facilities is on a longer-run basis as related to major investment plans and movement along the facility expansion path.

The concepts of the short run and the long run are clear from the viewpoint of theoretical economics. In the *short run* some of the factors of production (for example, labor) are variable. In the *long run*, all of the factors of production are variable. Postal Service investments in capital to reduce operating costs indicate a long run approach is applicable to the analysis. Instead of measuring the short run relationship between labor and volume, the appropriate relationship to measure is the movement along the expansion path that occurs when the Postal Service invests in new plant and equipment. This focus on the expansion path reflects changes in the scale of the facility as incremental labor or incremental capital are added.

In Docket No. R97-1, I advocated that a pooled equation could measure the longer-run expansion path. However, it has become increasingly clear that the labor hour/TPF data points gathered based on field data probably measure mail processing at a variety of disequilibrium points, based on varying capacity utilization and varying levels of mail. Accordingly, in a subsequent section I advocate that the regression

analysis at this time should be performed on data means rather than on the larger data set of individual observations that would be used in the pooled case. This is probably the "least bad" approach, even though various statistical deficiencies have been noted.

Dr. Bozzo states that, "Since capital is treated as a quasi-fixed factor, I am estimating 'short run' functions."[52] Dr. Bozzo's approach is wrong; there is a need to measure longer-run functions. He is only measuring transitory changes in mail processing.

The Postal Service witnesses and management appear to have a time frame of as little as one year to as much as five years in mind when they discuss the longer run, the period over which capital investment varies. The time frame seems to center on the two to three year range.

Dr. Bozzo recognizes that there are short-run and longer-run aspects of clerk and mail handler labor mail processing demands and that labor can fluctuate in the short run:

> My review of witness Moden's testimony (Docket No. R97-1, USPS-T-4) and discussions with Postal Service operations experts revealed that there are two main staffing processes. One process assigns the existing complement to various operations to meet immediate processing needs, and operates on time scales on the order of hours (let alone eight weeks). However, the longer term process of adjusting the clerk and mail handler complement operates more slowly--our operational discussions suggested up to a year.[53]

[52] OCA/USPS-T15-61, Tr. 15/6373.

[53] USPS-T-15 at 18, lines 6-13.

In conclusion, it would appear that there are several time periods relevant to the estimation of postal costs. One time period is a day, the period over which very short-term adjustments to labor are made on an operational basis. A second time frame appears to be the 4 week or 3 month time frame used by Dr. Bradley and Dr. Bozzo. Both of these time frames have little relevance to the longer-run expansion plans that seem to drive mail processing costs, have little relevance without information on capacity utilization, and may represent unreliable data readings for plants operating in a mode that is significantly different from equilibrium.[54] Finally, a longer-run time period, which would appear to approximate the length of the rate effective time period in the neighborhood of two years, seems to be the time frame over which investment, personnel, and equipment decisions are realized. Given the increasing importance of capital investment decisions to the Postal Service, this would appear to be the relevant time frame.

Mr. Degen also recognizes the ongoing length of the investment process: "From initial proposal to project completion, it may take anywhere from 6 to 9 years to bring a new plant on line. Site acquisition, planning, and approval for a new plant can easily take 5-7 years and actual construction another 1-2 years."[55] Apparently the Postal Service sites new plants to adjust to the network on a continuing basis, in recognition of increasing Postal flows. Accordingly, the actual longer-run time frame in which an

[54] Apparently, the set of mail-processing plants is under continuous modifications as plants are added, subtracted, and modified in the network. In some cases, the data generated by the plants may be of a transitory nature and irrelevant to the analysis.

[55] USPS-T-16, at 15, lines 4--7.

investment decision is made and implemented after a relatively protracted planning framework appears to be in the neighborhood of two years. Dr. Bozzo has also recognized that investment is an ongoing process, indicating that major equipment deployments usually take more than one year.[56]

It appears that a longer term model would best be approximated by a cross sectional analysis as modeled by the "between" model, based on Mr. Degen's testimony as outlined in his Figure 3.

4. Dr. Bozzo addressed Dr. Bradley's omission of variables in the regression equations. Dr. Bozzo considers additional variables, but the consideration is still deficient.

Dr. Bozzo indicated that:

> Since the additional explanatory variables--particularly wages and network variables--are statistically significant, my results indicate that Dr. Bradley's Docket No. R97-1 mail processing models for the operations I studied were under specified. As a result, Dr. Bradley's results appear to exhibit omitted-variables biases to some degree. However, since the revised variabilities accounting for these factors are lower, contrary to the expectations set forth in the Commission's Docket No. R97-1 analysis, the direction of the omitted variables biases in Dr. Bradley's results were mainly upwards, not downwards.[57]

The problem of which variables are to be included in a regression equation is a major problem in applied econometrics. I am concerned that the work presented is still lacking in important variables: a measurement of capacity utilization, specific capital measurements relating to activities rather than facilities, capital measurements that are additive, and possibly other variables. The analysis of network effects, and the

[56] OCA/USPS-T15-13, Tr. 15/6307.

[57] USPS-T-15 at 127, lines 10-17.

variables considered, is also, in my opinion, deficient; this is discussed in another section of my testimony.

5. The newly presented information about networks needs to be fully incorporated in the analysis.

There are repeated references to mail processing networks in both Dr. Bozzo's and Mr. Degen's testimonies. Although networks have not been previously referenced in regards to segment 3 mail-processing costs, the concept of the network has been in the literature in at least some form since at least 1986.[58] Mail processing activities and sites do not stand alone in terms of the network of originating and destination nodes. There seem to be three types of network issues. First, there is the intra-plant network of activities that feed mail to each other. One gets the impression that this network could change based on a variety of factors, including network volumes. A second type of network effect is apparently the delivery configuration of the service territory. Dr. Bozzo measures this network configuration with a variable measuring the number of possible deliveries. Finally, the position of the plant in the mail flow between other mail processing plants also seems to be a type of network relationship. According to an interrogatory response, the size of facilities and their mail processing operations depends not only on the volume of mail processed, but also their position in the Postal Service's network.[59]

[58] Laurits R. Christensen Associates, *United States Postal Service Quarterly Real Output, Input, and Total Factor Productivity, 1982 Quarter 1 Through 1986 Quarter 1, March 1986*; "A Report to Charles Guy, Director, Office of Economics, United States Postal Service," in USPS-LR-H-272, Docket No. R97-1.

[59] USPS-T-15 at 26, lines 4-6.

The analysis conducted by Dr. Bozzo addressed only the possible deliveries; he did not address the networking of activities at the plant level or the interchange of mail between plants. Both of these types of network effects might have an impact on labor demand.[60] These factors, often in conjunction with volumes, appear to determine the length of processing windows, the complexity of mail processing schemes, the relative amount of labor required for set up and take down activities, the operation's role as a gateway or backstop, other indicators of the level of costs, and the degree of volume variability. Accordingly, both Mr. Degen and Dr. Bozzo have introduced an important concept. The Commission has not reviewed networks in the recent past in evaluating Dr. Bradley's testimony, and this concept, which is new to the segment 3 analysis, does not appear to have been developed adequately.

6. Dr. Bozzo estimates mail processing activities (*e.g.*, manual processing, OCR, BCS) as independent activities; based on witness Degen's comments on networks and facilities, serious consideration needs to be given to the simultaneous modeling of activities.

Dr. Bozzo's approach is focused on single activities at a time: he treats the mail-processing activities as separable. However, mail-processing activities are not performed alone; this is partly recognized by Dr. Bozzo in his discussion of capital investment. Based on my experience with batch production processes I would expect that the operation of one mail processing activity is not independent of another. Dr.

[60] USPS-T-15 at 47.

Bozzo referenced *Freight Transportation Regulation* by Friedlaender and Spady.[61] They advocate the specification of a cost function in terms of multiple outputs. When asked if he considered such an approach in his estimation efforts, Dr. Bozzo indicated, "Yes. First, to characterize the set of operations for which I report econometric results, I employ ten equations with ten output (piece handling) variables; additionally, each equation includes other non-volume 'cost drivers' in addition to piece handlings. Second, my analysis is an element of the Postal Service's 'distribution key'."[62] Dr. Bozzo apparently considered the operation of each activity as being separable from another. However, Friedlaender and Spady seem to advocate simultaneous consideration of activities.

The relationship of processing patterns, volumes of mail, and the interaction of activities appears to be inadequately addressed in Dr. Bozzo's analysis. During oral cross-examination, Dr. Bozzo acknowledged that the mix of activities in operation at a site has an impact on the hours per TPF relationship.[63] He maintained that the use of the manual ratio captured the effect. Although the use of the manual ratio as a measure of the degree of automation is subject to serious criticism, there is no clear (or possibly even existing) relationship between the manual ratio and the activities at a site. The issue requires additional exploration.

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[61] Ann F. Friedlaender, Richard H. Spady, *Freight Transport Regulation*, Cambridge, MIT Press, 1981.

[62] OCA/USPS-T15-61(e), Tr. 15/6373-4.

[63] Tr. 15/6417.

7. Dr. Bozzo's treatment of homotheticity appears to lead to incorrect conclusions.

In his testimony Dr. Bozzo asserts that "...capital and labor variabilities will be identical, in equilibrium, under the assumption that the cost-pool-level production (or cost) functions are *'homothetic'*...Homotheticity implies that changing the level of output of the operation will not alter relative factor demands such as the capital/labor ratio, in equilibrium (and other things equal)."[64] However, the Postal Service testimony is replete with examples of the implementation of major investment programs designed to reduce costs. This concept was further developed in the Postmaster General's recent speech in Nashville.[65] The focus is on the elimination of major labor costs via capital investment to achieve an overall reduction of total costs. Accordingly, the application of a homotheticity assumption appears to be an inappropriate assumption.

8. Dr. Bozzo has raised some important issues about cost minimization; resolution of the issues may affect the cost segment 3 analysis.

Dr. Bozzo has stated that his theory is independent of whether the Postal facilities minimize costs and, in support, cites a publication by Toda.[66] Dr. Bozzo's testimony does not discuss QICAP and he has provided only a limited amount of useful information in this proceeding on the development of the variable QICAP. Accordingly, I

[64] USPS-T-15 at 40, lines 10-14.

[65] Prepared remarks at the National Postal Forum, Nashville, Tennessee, March 20, 2000, See OCA/USPS-98, Tr. 21/9152.

[66] The article introduced by Dr. Bozzo on the topic of non cost minimization appears to be by Yasushi Toda, "ESTIMATION OF A COST FUNCTION WHEN THE COST IS NOT MINIMUM: THE CASE OF SOVIET MANUFACTURING INDUSTRIES, 1958-1971," *The Review of Economics and Statistics*, Vol. LVIII, August 1976, 259-268.

have relied on the library reference that he has mentioned.[67] The documents referencing QICAP are filled with references to Total Factor Productivity. Toda's article shows that measurements of Total Factor Productivity may be incorrect when computed for non-cost minimizing firms. Dr. Bozzo indicates that his measurement of QICAP does not depend on a measurement of Total Factor Productivity (which the Postal Service appears to use in other circumstances). It is not clear what the impact of the Toda article would be; however, this is an issue that needs to be reviewed.

In reviewing the associated library reference, two potential deficiencies associated with QICAP were found:

(1) Depreciation reported in the National Consolidated Trial Balance is an inappropriate measure of the value of owned capital. To be specific, the depreciation reported in the NCTB is based on accounting period conventions not suitable for productivity accounts.[68]

(2) The Moody's composite of average yields on corporate bonds is used in arriving at the USPS cost of capital.[69] OCA witness Dr. Edwin Rosenberg (OCA-T-3) has indicated that the Postal Service can borrow from the U.S. Treasury at the cost of money plus 1/8 percent.[70]

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[67] USPS-LR-H-272.

[68] USPS-LR-H-272, "USPS Quarterly Total Factor Productivity Methodology, A Report to Charles Guy, Director, Office of Economics, USPS," L.R. Christensen Associates, January 1988.

[69] *Ibid.* at 47.

[70] OCA-T-3, Docket No. R2000-1.

In discussing Postal Service cost minimization, one is addressing certain operating procedures from the point of view of economic theory. The Postal Service approach to operations and pricing in terms of whether or not it maximizes its output can result in a very different situation than one in which efficient competitive equilibrium is sought.

From classical economic theory, an output maximizing company (in comparison to a profit maximizing/cost minimizing company) does not operate efficiently, achieving the equality of marginal cost with demand under different conditions than would occur under pure competition. Dr. William Niskannen's pioneering work on public organizations provided the microeconomic theory for an enterprise charged with public responsiveness and responsibilities.[71] He indicated that such an organization has a tendency to over-invest. It is interesting to note that a refrain in the Postal Service community is the need to grow volume and increase investment.

The benchmarking of corporate practices has been a major goal in the corporate sector in recent years as companies have attempted to become increasingly efficient. Witness Tayman, in commenting on investment policies, indicated that he was unaware of any benchmarking studies on investment standards relating to equipment in place.[72] Also, when requested, the Postal Service was unable to produce any internal documents prepared by or for the Postal Service evaluating the level of capital spending by its counterparts, either in other advanced industrial nations or by its major

[71] Niskannen, William A., *Bureaucracy and Representative Government*, Chicago, Aldine, 1971.

[72] Tr. 2/500-1.

competitors in the United States, such as FedEx or UPS. Moreover, Postal Service witness Kingsley has stated that there are no studies produced by or for the Postal Service since the beginning of 1998 evaluating its flat processing automation as compared to the automation achieved by its counterparts in other advanced industrial nations.[73] These responses tend to confirm that there are no benchmarking studies.

In a response to the interrogatory of the Association of American Publishers (AAP), the USPS recites Professor Panzar's direct testimony in Docket No. R97-1:

> However, the efficiency of the Postal Service operating plan is not an issue for the analyst. As long as it is given that postal services will be produced following Postal Service practices and procedures, the relevant marginal and incremental costs for pricing purposes are those calculated based on the Postal Service operating plan.[74]

It is clear that, on occasion, the USPS does not achieve its investment budget (apparently failing to meet plans) and has very limited, if any, analyses verifying whether such an investment budget is efficient. Accordingly, Toda's comments, introduced to this proceeding by Dr. Bozzo, are relevant. The behavior of a cost function that is not based on the theoretical assumptions of cost minimization and marginal productivity pricing is apparently a very different assumption from the cost minimization case. The impact on Dr. Bozzo's conclusions needs further explanation.

Toda's work was developed for the analysis of the Soviet economy. Soviet businesses appear to have been operated under an output-maximizing objective. In addition, the industries were under various governmental regulations in acquiring the

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[73] ANM/USPS-T10-27, Tr. 5/1578.

[74] AAP/USPS-1, Tr. 21/8611.

factors of production, and the prices of finished goods and intermediate products were not set on a shadow price basis. Accordingly, a mixture of operating inefficiencies and improper pricing could theoretically arrive at a situation different from that obtained from an efficient competitive equilibrium.[75]

The Postal Service is a major purchaser of goods and services, and possibly even has some degree of monopsonistic power in the purchase of some types of specialized machinery as well as monopolistic competitive power in the sale of certain services. Therefore, Postal Service may, through its resource input, production, and operating decisions, affect factor prices. Accordingly, in achieving an economically inefficient factor allocation, the USPS may make purchasing and investment decisions that result in the distortion of factor prices, resulting in the generation of factor input prices different from those that would normally occur in a competitive environment. Dr. Bozzo did not address the implications for the labor demand function.

9. In conclusion, the theory underlying Dr. Bozzo's model has not been shown to be derived from the appropriate economic theory.

In my opinion, the Postal Service has not demonstrated that Dr. Bozzo's model is supported by appropriate economic theory. I have also noted deficiencies in the statement of the function being estimated, the selection of variables, the treatment of the network, the time frame, and cost minimization.

[75] Toda, *op.cit.* at 264. Dr. Toda actually found that some of the Soviet industries operated efficiently (a result he did not expect to find) and that some industries operated inefficiently. Regardless of the empirical findings, the theory is applicable insofar as it applies to firms that do not minimize costs. A partial explanation of Dr. Toda's empirical findings would be that the Soviet economy actually did, in some cases, operate efficiently.

C. Criterion 3: The Study Should Include a Discussion of the Modeling Approach and How It Is Consistent with the Underlying Data.

1. Another problem associated with Dr. Bozzo's work is his modeling of capital (as opposed to the accuracy of the QICAP variable itself). The use of capital affects future Postal Service costs.

Previous, current, and future investment efforts are important to the Postal Service and are focused on achieving productivity gains. The use of capital and the projection of the investment budget and efficiencies to be created has been highlighted by the Postal Service: "During 1999, the Postal Service continued its accelerated deployment of automation and mechanization equipment and software. This allowed us to increase our ability to place accurate barcodes on letter mail, while deploying additional equipment to sort the higher volumes of automated letter, flat, and package mail." [76]

(a) Dr. Hsiao has useful guidance on the modeling of capital and investment in economic models.

Dr. Hsiao's pioneering work on fixed effects has been referenced directly or indirectly throughout the analysis of volume variability.[77] A quote from the textbook *Econometric Models, Techniques, and Applications*, co-authored by Dr. Hsiao with Michael Intriligator and Ronald Bodkin, addresses the issue of capital in the econometric estimation process:

[76] United States Postal Service, *1999 Comprehensive Statement on Postal Operations* at 50.

[77] Cheng Hsiao, *Analysis of Panel Data*, Cambridge University Press, 1986. Another book referenced is *Econometric Models, Techniques, and Applications*, with Michael D. Intriligator, Ronald G. Bodkin, and Cheng Hsiao, Prentice Hall, 1996, Second edition.

...The inputs should, in theory, be measured in terms of *services* of the input per unit of time, but such data are generally not available, so they are instead typically measured by the amount of the input utilized or available in the production process. Labor input is typically measured as labor hours employed per year, but it is also sometimes measured as number of employees. Capital input is typically measured by the net capital stock (net of depreciation), but it is also sometimes measured by the gross capital stock and by certain direct measures (e.g., number of tractors in use for agriculture)....

Of these variables, the one that creates the most problems is the capital input. While data on output and labor are generally available, data on capital are either not available or of questionable validity. Enormously complex problems of measurement arise with respect to capital as an input to the production process. First, capital generally represents an aggregation of very diverse components, including various types of machines, plant, inventories, and so on. Even machines of the same type may cause aggregation problems if they are of different vintages, with different technical characteristics, particularly different levels of productivity or efficiency. Second, some capital is rented but most is owned. For the capital stock that is owned, however, it is necessary to impute rental values to take account of capital services. Such an imputation depends, in part, on depreciation of capital. Depreciation figures are generally unrealistic, however, since they entail both tax avoidance by the firm and the creation by the tax authorities of incentives to invest via accelerated depreciation. Third there is the problem of capacity utilization. Only capital that is actually utilized should be treated as an input, so measured capital should be adjusted for capacity utilization. Accurate data on capacity utilization are, however, difficult or impossible to obtain.[11] Other problems could be cited as well, but all these suggest that, if at all possible, the use of an explicit measure of the capital stock should be avoided, since it is virtually impossible to find data adequately representing capital stock.[78]

11 An early approach to capacity utilization was to assume that the percentage of capital utilized was the same as the percentage of labor utilized and thus to reduce the total capital available by the (labor) unemployment rate, as in Solow (1957). More recently, there are various methods used to adjust capital for the degree of utilization which are independent of the unemployment rate. For example, the Wharton capacity utilization rate method assumes 100% utilization at local peaks of the industry output series, with capacity assumed to grow linearly from peak to peak. Capacity utilization is then obtained as the percentage of output relative to the value obtained on the linearly interpolated capacity series.

78 Intriligator, Bodkin, and Hsiao, *op.cit.* at 284-85.

(b) Dr. Bozzo has not modeled capital in a way that would meet the criteria outlined by Drs. Intriligator, Bodkin, and Hsiao.

Dr. Bozzo's approach does not meet the criteria outlined in the above quote. Dr. Bozzo has no measure of capacity utilization in his equations. Mail processing is a factory batch processing/job shop type of process. In analyzing factory operations, capacity utilization has a strong impact on cost performance. This is a potentially very important variable omitted from the analysis. In addition, it is not clear whether capital is appropriately modeled as an exogenous variable (as I believe Dr. Bozzo has done), or as an endogenous variable in a simultaneous equation system.

On the subject of the capital variable, Dr. Bozzo indicates that:

> With respect to the capital variable, my inclusion of the capital quantity rather than price is appropriate for a treatment of capital as a "quasi-fixed" factor. While I would expect capital costs to be volume-variable to some degree (possibly to the same degree as labor costs as discussed in USPS-T-15 at pages 39-41), I would nevertheless expect that the nature of the Postal Service's capital planning and deployment processes is such that capital and labor are not simultaneously determined, but rather that the available capital is taken as a "given" when labor work assignments are made.[79]

Dr. Bozzo indicates that capital is neither exogenous nor endogenous;[80] such a situation is impossible. Accordingly, some review of the specification of the econometric estimating model is needed.

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[79] OCA/USPS-T-15-56(b), Tr. 15/6359.

[80] Tr. 15/6414.

2. Witness Degen's testimony is a major input to the understanding and modeling of postal mail processing.

Witness Degen presents information on the physical and operational nature of mail processing as related to volume variability:

> ...I show that the structure of mail processing operations does not support the assumption that volume-variability factors should uniformly equal 100 percent. My analysis of the structure of mail processing operations also reveals that the pooled regression approach advocated by OCA witness Smith and the cross-sectional analysis favored by UPS witness Neels, in Docket No. R97-1, potentially ignores (sic) features of the Postal Service network and operations that are vital to distinguishing the cost effects of volume changes from the effects of non-volume factors.[81]

Mr. Degen raises two important issues in his testimony[82]:

- Mail processing operations have cost causing characteristics related to their location, service area, and role within the Postal Service's network that will not change as a result of a small, sustained increase in volume.
- For a small, sustained, and representative increase in national RPW, all other factors remaining the same, volume will increase workload in all, or nearly all, plants.

Witness Degen's discussion of the postal network--the ways in which the mail processing plants interact--suggests that volume variability should more appropriately be evaluated at the plant or inter-plant facilities network level, rather than in terms of activity costs on the mail processing plant floor. In examining the current Postal Service

[81] USPS-T-16 at 4, line 23 through 5, line 6.

[82] USPS-T-16 at 6, lines 18-23.

network, he notes in Section 2 of his testimony that over 30,000 post offices and other delivery units are networked, with mail processing being performed in large plants as well as other offices. He indicates that plants can sort mail as well serve as intermediate trans-shipment and processing points for various sections of the network.

In addition, the 21 Bulk Mail Centers (BMCs) constitute a separate network of processing facilities for specialized Standard Mail (A) and (B). BMCs sort incoming Standard Mail parcels to 5 digit ZIP codes for delivery units in their service territories, and also sort outgoing parcels to other BMCs. The role of BMCs in processing non-parcel Standard Mail (A) varies, but it usually involves sack, tray, and bundle sorting and the cross-docking of pallets (no piece sortation of letters and flats). Mr. Degen indicates that the network of processing plants is not static, but has involved the addition of nodes as the nation has grown and its population distribution has changed.

Mr. Degen concludes in Section 3 of his testimony that national volume growth affects the workload in the entire network. He states, "The geographic distribution of increase in national volume, and hence of volume-related workload growth, for mail processing plants, is a key element of my analysis of the relationship between mail processing labor costs and mail volumes." He continues "...I must conclude that the additional volumes will cause workload growth throughout the network."[83]

Mr. Degen's testimony reinforces my conclusion that postal costs are strongly influenced by the interaction of mail processing plants and that the longer-run analysis of the relationship between cost and volume is appropriate--*i.e.* considering volume, not

[83] USPS-T-16 at 15, lines 9-12 and at 15, lines 20-21.

in terms of its behavior in any one processing plant, but rather on an overall basis as volume is adjusted: such an approach would look at the effect of a change in volume on total cost. Accordingly, the "between" analysis presented by Dr. Bozzo, based on the arithmetic means of cost data appears to be more appropriate than is a fixed effects approach. Theoretically, one strives to more closely attain the estimation of longer-run costs (the types of costs that would vary as the nodes of the network changed as delineated by Mr. Degen), rather than the short- run cost estimation presented by Dr. Bozzo.

In Section 5 of his testimony, Mr. Degen extensively presents a graphical analysis of the impact of volume growth. To quote Mr. Degen:

> In questioning Dr. Bradley on his testimony in Docket No. R97-1, the Commission used a plot of TPH and hours from the manual letter cost pool to imply that visual inspection of the plot indicated 100 percent volume-variability for that cost pool. Dr. Bozzo thoroughly addresses the issue of graphical representation and analysis of the MODS data in his testimony, but I would also like to discuss it here because the pictures succinctly illustrate how ignoring non-volume characteristics of plants can lead to a biased, misleading understanding of the hours-volume relationship. [84]

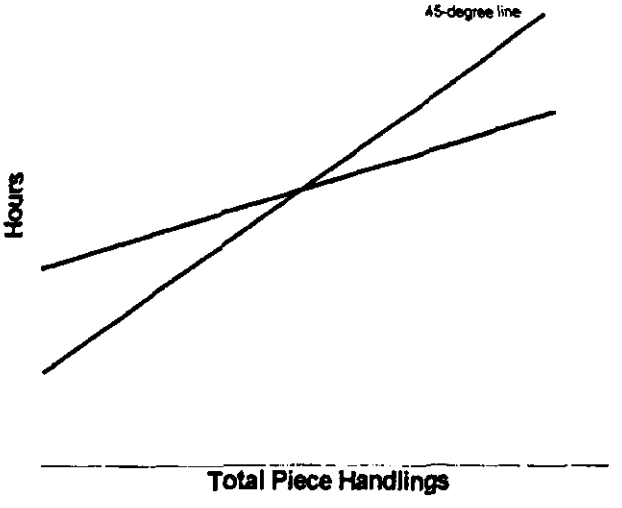
Mr. Degen maintains that a graph of hours against volume can result in the erroneous conclusion that hours will vary in direct proportion to volume. The error, in Mr. Degen's opinion, is caused by the absence of information on network and plant characteristics. However, the argument for 100 percent volume variability is visually compelling, as will be discussed subsequently.

[84] USPS-T-16 at 24, lines 6 through 13.

The issue of the correct estimation of volume variability is best addressed by examining Mr. Degen's graphs.[85] Mr. Degen's graphs can be used to justify any of the three techniques under consideration in this case—fixed effects, pooled, or "between." As will be shown, the fixed effects approach is unsuitable: a simple review of the data shows that the eye (and economic logic) suggests the fixed effects approach is wrong.

Figure 1 of Mr. Degen's testimony, reproduced here, shows the "true" cost structure of a mail processing operation for a hypothetical mail processing plant. By "true" or "underlying" cost structure he means the systematic, non-stochastic component of the hours/pieces relationship.

Figure 1
The Underlying Cost Structure for a Plant



[85] I do not imply that Mr. Degen would agree with any of my analysis; I would expect him to disagree. I use his graphs to show that a convincing argument can be made for the possibility of essentially 100 percent volume variability.

Volume variability is less than 100 percent for the hypothetical plant in Figure 1.[86] At some times during plant operation, the plant will be operating at relatively high volume (suggesting a high level of capacity utilization), and at other times the plant will be at a lower volume of TPH (with a lower level of capacity utilization).

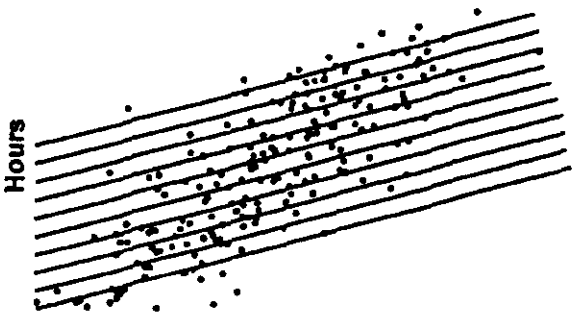
Figure 2
Observable Data from the Underlying Cost Structure with Random Noise for One Plant

Total Piece Handlings

In Figure 2 of his testimony, Mr. Degen shows simulated sample data for the same plant generated by adding random noise to the underlying hours and pieces relationship plotted in Figure 1.

[86] This is exactly what one would expect, given that this is a short-run diagram relating small changes in hours and TPH.

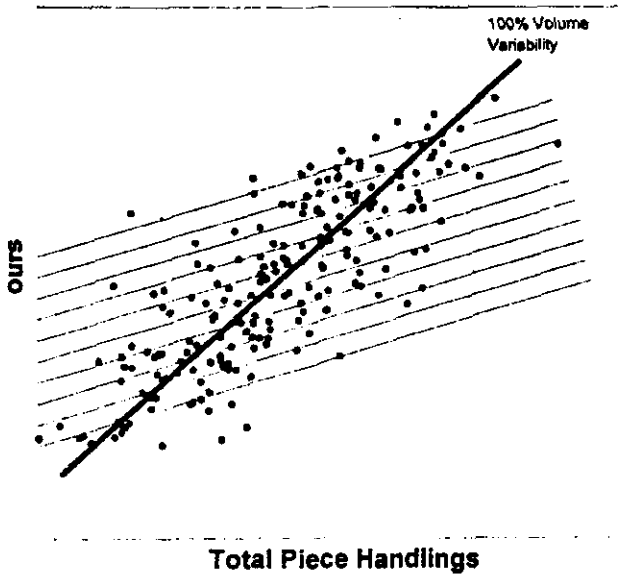
Figure 3
Data for Ten Plants with Similar Cost Structures
but Different Levels of Efficiency
Illustrating True Cost Structure



Mr. Degen's Figure 3 presents ten plants with cost structures similar to the plant in Figure 2, but with different levels of efficiency.[87] For each plant, Mr. Degen plotted a line analogous to that plotted in Figure 1. Accordingly, there are ten sets of points and ten lines, all of them short run.

[87] Mr. Degen and Dr. Bozzo attribute the differences in efficiency to differences in networks and other factors not associated with volume of mail. Nevertheless, the Postal Service has extensive testimony and comments on investment and efforts to achieve lower costs. Treating these fixed effects factors as exogenous rather than endogenous to the capital investment process seems to be wrong.

Figure 4
Data for Ten Plants with Similar Cost Structures
but Different Levels of Efficiency
Illustrating Misinterpretation of Cost Structure



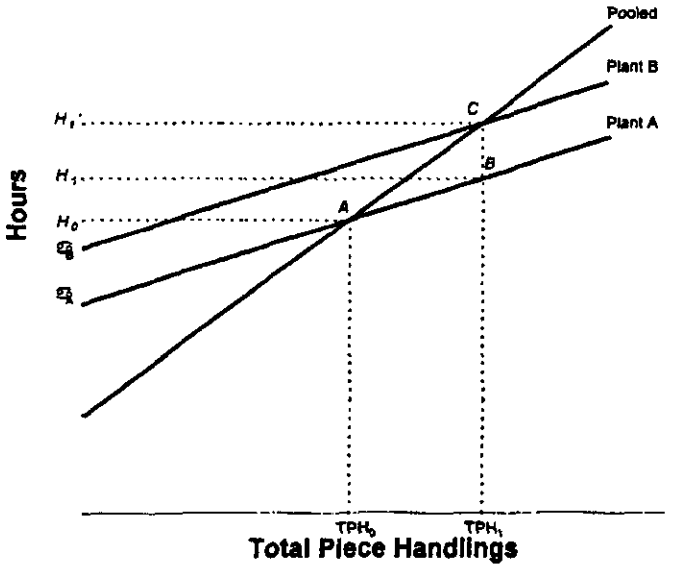
In Figure 4, the lines presented in Figure 3, which represented the formerly examined short-term hypotheses of the relationship between hours and pieces, are suppressed. An overall trend line is added to the diagram. Instead of visualizing the data as in Figure 3--ten separate lines for ten facilities--the data are considered on a combined basis.[88]

[88] Mr. Degen's title for Figure 3, referencing the "true cost structure," is correct in the sense that the cost structure is short run. Similarly, the title for Figure 4, referencing a "Misinterpretation of Cost Structure," was included in the reproduced figure, but, in contrast to Mr. Degen, I believe that the true cost structure is the line he has labeled "100% Volume Variability".

Whatever interpretation one wishes to give to the data is dependent on which lines one looks at--*i.e.* one could derive a fixed effects model from Figure 3; or alternatively one could define a pooled model from a review of Figure 4, recognizing that additional variables would be needed and that any two variables approach is inadequate insofar as it may omit important information.

From a review of the graphs, two distinctly different alternatives are possible. The conclusion from the underlying model is essentially determined once one has specified the choice of model; all that then remains is the model estimation. The issue is then the selection of the appropriate line for estimation.

Figure 5
Analysis of Response to Volume Growth



Turning to Mr. Degen's Figure 5, two plants are examined: Plant A and Plant B. Assume that Plant A is designed and sized correctly, based on Mr. Degen's theory of the mail processing network. Assume that optimal capacity is at "A", but that the plant frequently operates in the short run, and the line shows these various levels of operation. Assume that Plant B is designed and sized correctly for a higher level of TPH, and that the optimal capacity is at point C. Again, on a short-run basis the plant may operate anywhere along the line. The two most important points in the diagram are points A and C. They represent the real labor costs of processing mail at each of the plants when operating at plant design capacity--the level for which they were designed, based on the evolving mail processing network as described by Mr. Degen.

Figure 5 has two types of plots in it. The facility by facility plots (labeled "Plant A" and "Plant B") are the types of plots that both Dr. Bradley and Dr. Bozzo generate and estimate. These are short-term plots of data. Alternatively, one could allow for the treatment of the data on a pooled basis or cross sectional basis. In that case, one would estimate the line AC. Such a modeling approach would be consistent with the data and an underlying longer-term capacity expansion path.

The mail-processing network consists of over 300 plants. Accordingly, there are variously sized plants, and in a real world environment costs exhibit stochastic properties. A pooled regression line could be generated. It would be based, not on two plants, but based on confirmed data from approximately 300 plants. Alternatively, a cross sectional regression line based on the arithmetic means of the plants could be generated. The appropriate econometric techniques and variables would need to be accounted for in order to avoid problems of omitted variables. The results could be 100

percent volume variable, or some other number either greater than (or less than) 100 percent volume variable. The results would not be known until the appropriate variables were used. Such an analysis correctly using all relevant variables has not yet been performed in this case. However, on a preliminary basis, there are the pooled and "between" regressions in Dr. Bozzo's testimony, which are unsatisfactory but also the best currently available.

Of the approaches presented by Dr. Bozzo, it would appear that the cross sectional approach may be the "least bad." For each mail processing plant, the data are averaged (i.e., a mean is determined); a regression analysis is then performed on the sites. This is a cross sectional approach, and based on Mr. Degen's testimony, appears to be superior to either the fixed effects or pooled models. It examines costs as plant size varies, based on the plants sized for the postal network.

The results from the various models considered by Dr. Bozzo are set forth in Table 5. I have indicated that the "between" model, a type of cross sectional model generated by Dr. Bozzo, is the "least bad" of the models. In general, cross sectional data are assumed to show a longer-run equilibrium, and the line has all of the plants--*i.e.* all of the cross sectional data--thereby having both short-term and longer- term aspects. The major statistical problems associated with the model have been well documented. However, at this point, it is the only model "left standing." Accordingly, if the Commission should conclude that some action is necessary in adopting a model, I find this to be the "least bad" model. I do not recommend adoption of the "between" model in view of the underlying problems with the data and the study. I recommend adoption of 100 percent variability until a different approach is shown to be reasonable.

Table 5
Variabilities--Dr. Bradley, Fixed Effects, Between, Pooled, and Random

Variabilities Using Different Methods

Activity	Dr. Bradley	Dr. Bozzo Fixed Effects	Dr. Bozzo Between	Dr. Bozzo Pooled	Dr. Bozzo Random Effects	Total Cost $--000
BCS Sorting	0.945	0.895	1.044	0.931	0.916	1,043,841
OCR Sorting	0.786	0.751	1.101	0.862	0.821	219,070
FSM Sorting	0.918	0.817	1.026	0.913	0.880	1,042,369
LSM	0.905	0.954	0.913	0.922	0.918	78,765
SPBS Non Priority	0.469	0.641	0.889	0.724	0.662	283,275
SPBS Priority	0.802	0.641	0.889	0.724	0.662	82,447
Manual Flats	0.866	0.772	0.963	0.842	0.803	459,933
Manual Letters	0.797	0.735	0.906	0.845	0.790	1,563,963
Manual Parcels	0.395	0.522	0.730	0.645	0.615	60,593
Manl Priority Sorting	0.448	0.522	0.748	0.642	0.627	259,762
Cancl. And Mail Prep	0.654	0.549	0.845	0.643	0.569	295,957
Total						5,389,975

Attributable Costs Based on Various Variabilities

	Total Cost $--000	Dr. Bradley $--000	Dr. Bozzo Fixed Effects $--000	Dr. Bozzo Between $--000	Dr. Bozzo Pooled $--000	Dr. Bozzo Random Effects $--000
BCS Sorting	1,043,841	986,430	934,238	1,089,770	971,816	956,158
OCR Sorting	219,070	172,189	164,522	241,196	188,838	179,856
FSM Sorting	1,042,369	956,895	851,615	1,069,471	951,683	917,285
LSM	78,765	71,282	75,142	71,912	72,621	72,306
SPBS Non Priority	283,275	132,856	181,579	251,831	205,091	187,528
SPBS Priority	82,447	66,122	52,849	73,295	59,692	54,580
Manual Flats	459,933	398,302	355,068	442,915	387,264	369,326
Manual Letters	1,563,963	1,246,479	1,149,513	1,416,950	1,321,549	1,235,531
Manual Parcels	60,593	23,934	31,630	44,233	39,082	37,265
Manl Pri Mail Sorting	259,762	116,373	135,596	194,302	166,767	162,871
Cancl and Mail Prep	295,957	193,556	162,480	250,084	190,300	168,400
Total	5,389,975	4,364,418	4,094,231	5,145,960	4,554,704	4,341,106

3. Witness Degen's testimony is consistent with the application of intuition and common sense that indicates the volume variability for mail processing approaches 100 percent.

The above analysis of Mr. Degen's testimony is substantiated if the problem is looked at from simply the perspective of intuition and common sense.

In addressing the issue of data and modeling, Dr. Bozzo states in his testimony:

> During the hearings on the Postal Service's direct case in Docket No. R97-1, Chairman Gleiman asked Dr. Bradley to confirm the intuition
>
> > ...that if costs vary 100 percent with volume, the graph of those costs and the volume data points should resemble a straight line with a 1-to-1 slope. Docket No. R97-1, Tr. 11/5578 at 4-6.
>
> Dr. Bradley agreed, and even added that the line should go through the origin (Id., at 8-9, 11).[21] In my opinion, Dr. Bradley should not have confirmed Chairman Gleiman's intuition. It has been understood since Docket No. R71-1 that to measure "volume-variability," it is necessary to hold constant the non-volume factors that affect costs.[89]

21 Dr. Bradley's statement that the line should additionally pass through the origin was in error. As a general matter, the cost surface passing through the origin is neither necessary nor sufficient for the 100 percent volume-variability result.

Dr. Bozzo apparently believes that the multivariate nature of the modeling process makes the bivariate graphs irrelevant. However, the graphs are visually compelling in showing that hours and TPH vary together closely. The Appendix contains plots of the number of hours and TPH for some of the mail processing activities studied by Dr. Bozzo. Dr. Bozzo has referred to Dr. Bradley's data, so the graphs are based on Dr. Bradley's data. The graphs are open to the same criticisms

89 USPS-T-15 at 59, lines 4 through 13.

voiced in Docket No. R97-1. Only two pieces of data are plotted. However, all of the information actually contained in Dr. Bradley's data set and which was actually collected from the field operations (and remaining after his scrubbing) is also present, recognizing that data are not denoted by accounting period. Data were obtained from Dr. Bradley's data set in order to be consistent with Dr. Bozzo's comments. I have previously concluded that the plots are consistent with a high degree of volume variability, possibly even 100 percent volume variability. This is a simple and intuitively plausible initial conclusion. This would appear to be the case for a number of the activities. An ordinary least squares line (which does not consider any of the myriad of issues associated with serial correlation, lack of variables, times series nature of the data, omitted variables, etc.) has the characteristics presented in Table 6.[90]

Table 6
OLS Summary by Selected Activities

Activity	Regressor	RSquare
OCS	0.19	0.77
BCS	1.01	0.94
LSM	0.98	0.97
FSM	1.01	0.96
MANL	1.05	0.90
MANF	1.09	0.90

The regression lines are econometrically indefensible insofar as the regression does not consider the myriad of issues that contribute to the understanding of the TPH/hours relationships. However, the lines do show that a simple visualization of a straight line through the data suggests a high level of volume variability, resulting in a high R

[90] The regression runs are provided in Library Reference OCA-LR-I-2.

square. A modeling approach consistent with the data would be the "between" model or the pooled model.

4. In terms of identifying a major factor driving cost, intuition appears reasonable.

Dr. Bradley's analysis included a large number of variables in addition to hours and TPH. There is, however, a difference between the number of variables and the amount of information presented. All of the variables were either derived from the scrubbed data of hours and TPH via cross products, or were simply time trend or dummy variables. Except for time trend and seasonal information, the actual data show that TPH and hours vary together closely.

The issues under consideration are the correct estimation of the relationship, appropriate variables, the underlying methodology, and whether such estimation would yield 100 percent variability. The graphs derived from the application of intuition are compelling and suggest the existence of a relationship for high volume variability, probably at or approaching 100 percent. A correctly constructed econometric model might also reach such a conclusion.

5. In conclusion, Dr. Bozzo's choice of econometric model is inconsistent with the economic modeling of the postal process.

The level of econometric sophistication evidenced previously by Dr. Bradley and currently by Dr. Bozzo is clear. The major concern with their econometric estimation work is the inappropriate choice of a model for estimation. The "between" model is the more appropriate model at this time. The microeconomic assumptions underlying Dr. Bozzo's econometric model are at best muddled. We are faced with analyses of non

cost minimizing firms, cost functions that have become labor demand functions, and state of the art price theory which is not organized in a coherent fashion or logical progression. Furthermore, the underlying data are deficient, both in terms of variables omitted and variables included (such as QICAP and the manual ratio).

D. Criterion 4: A Correct Estimation Procedure which Is Suitable to the Estimation Needs at Hand Should Be Used.

1. The "between" model is currently the "least bad" model available.

The deficiencies of the fixed effects approach as it has been applied have been outlined in Docket No. R97-1, where it was rejected. Dr. Bozzo's overall approach is fundamentally identical to that of Dr. Bradley. Accordingly, the fixed effects model is unsuitable at this point.

Deficiencies in the availability of variables also render an application of the pooled model unsatisfactory. Without a measure of capacity, capital, and networks (among other variable deficiencies), the pooled model is subject to specification error.

The use of cross sectional models allows for an analysis of costs as facilities vary. The "between" model has data available on a cross sectional basis, but the model is subject to deficiencies in the set of variables available. There have been a number of criticisms of the econometric estimation deficiencies of the "between" model, as outlined by Dr. Bradley. However, the "between" model permits an analysis of labor demand based on size of the facilities. Accordingly, the "between" model has relevance to the current proceeding and is the "least bad" model.

In addition to deficiencies in Dr. Bozzo's current models, several major areas of the methodology need potential improvement. First, at the activity level, investment

almost certainly has a major impact on the costs. However, investment is, in turn, a function of TPF or TPH, so in a sense investment is an endogenous variable to the mail handling process. It may be appropriate to model simultaneously both investment and labor hours. Dr. Bozzo has not examined this area. Second, Dr. Bozzo's model treats each activity as if it were independent of every other activity in the mail processing plant. However, one would expect the efficiency, labor usage, investment requirements, and network aspects of the ten activities modeled to be significantly interrelated. This potential interrelationship could be due to some sharing of the workforce, the management, or the facilities. It is difficult to imagine that the cost of performing work in one activity is independent of other work performed in the plant.

2. In conclusion, Dr. Bozzo has not adopted a correct estimation procedure.

Dr. Bozzo's fixed effects approach is not acceptable. Assuming that the data could be improved, the appropriate variables developed, and a clear economic theory could be stated, one could perform the modeling effort using a pooled approach; but such an approach is not appropriate at this time. Accordingly, we are left with the "between" case as the "least bad." However, in view of the many uncertainties I have discussed, I do not view its adoption as appropriate.

On a longer-term basis, alternative modeling formations need to be considered, both in terms of the interrelationships of activities and whether some simultaneous estimation of investment and cost is appropriate. In modeling activities, the incidence of costs as a result of First Handling Pieces rather than TPF or TPH should be

examined. In summary, it is not yet even clear what the best modeling approach would be, but it is clear that there are a number of options that need to be explored.

E. Criterion 5: Results for Econometric Equations and Alternative Econometric Analyses Should Include a Discussion of the Values, Signs, and Other Relevant Information for the Variables.

Dr. Bozzo presents a variety of alternative econometric analyses, but they are all variants on his preferred methods. Fundamental changes and new modeling approaches have not been explored. Accordingly, while it is difficult to say that Dr. Bozzo has ignored Criterion 5, strictly speaking; it is also clear that this requirement needs to be applied to the study after the study has been redone. First, there needs to be a rework of the economic theory—with an improvement in presentation and more likely an exploration of multiple product production, simultaneous determination of output and investment, and an improved microeconomic analysis. Second, there needs to be a significant upgrading of the quality and availability of data. Finally, there needs to be the application of suitable estimating techniques. Therefore, the most important analyses have not yet been performed and any discussion at this time of values, signs, or other relevant information for variables is moot.

VII. CONCLUSIONS

A. Variabilities Were Traditionally Assumed To Be 100 Percent. The First Study, Performed by Dr. Bradley, Was Seriously Deficient.

The Commission has always applied a variability of 100 percent when attributing mail-processing costs. In Docket No. R97-1, the Postal Service reviewed the policy and presented a witness, Dr. Bradley, who proposed a new econometric model for mail processing operations to measure volume variability. That model purported to analyze the change in the estimated volume of mail processed with the estimated hours of labor required to process that volume. From this, he calculated the percentage change in labor hours for mail processing for each percentage change in the volume of mail, arriving at an estimate of volume variability. He concluded that the resulting volume variabilities for each of the several cost pools could be applied by Postal Service witness Degen. Dr. Bradley's volume variabilities were significantly lower than 100 percent, and the Postal Service contended that his variabilities should be applied rather than the traditional 100 percent variability used by the Commission.

Numerous objections were raised to Dr. Bradley's model specifications, his choice of regression techniques, and his handling of the data prior to running his regressions. The Commission's recommended decision specifically rejected Dr. Bradley's approach on several grounds and indicated that additional study was necessary before the Commission revised its approach to mail processing variability.

The Commission found fundamental deficiencies in the specifications for Dr. Bradley's model and discussed these problems in both its opinion and in greater detail in Appendix F to the Opinion. The Commission recognized that Dr. Bradley's model

failed to consider the impact of capital. The Commission noted that Dr. Bradley did not base his analysis upon a correctly specified cost function as indicated by the theory of production. The Commission also faulted Dr. Bradley's method of preparing the data for analysis, citing his several seemingly arbitrary restrictions and over-zealous scrubbing of the data prior to running regressions. The Commission recommended alternative approaches and further analysis. Finally, the Commission clearly indicated the fixed-effects model selected by Dr. Bradley in lieu of other possible regression models such as the pooled or the "between" model was not sufficiently supported and, in fact, had numerous infirmities.

B. Dr. Bozzo's Study Is also Seriously Deficient.

The Postal Service has now presented Dr. Bozzo's testimony that further analyzes mail processing costs, critiques Dr. Bradley's study, and responds to the Commission's R97-1 Opinion. Significantly, Dr. Bozzo reviewed the work of Dr. Bradley and that of other witnesses in Docket No. R97-1 and found that some criticisms of Dr. Bradley's work were valid. In response, Dr. Bozzo modified the methodology of Dr. Bradley.

While Dr. Bozzo purports to present a study meeting the objections expressed by the Commission in Docket No. R97-1, closer inspection indicates a startling similarity to the Postal Service's prior presentation that has been soundly rejected by the Commission. Dr. Bozzo continues to ground the analysis on the fixed effects regression model that the Commission essentially rejected in the Docket No. R97-1 opinion. Dr. Bozzo dresses up Dr. Bradley's defective cost function, renaming it a labor

demand function. He adds at least two variables affected by volume, "QICAP," and the heretofore unmodeled "network" characteristic. According to Dr. Bozzo, neither variable has ever been utilized by the Commission in considering segment 3 costs. The new Postal Service model is essentially Dr. Bradley revisited. Thus, without more, the Commission is faced with continuing to apply the traditional 100 percent volume variability to the ten cost pools.

The Commission may wish to attribute mail-processing costs for the ten cost pools on the basis of a variability analysis other than that in Docket No. R71-1 on which the Commission has based its traditional approach. Having independently reviewed the mail processing information and data supplied by the Postal Service and applied the appropriate classical economic theories, I conclude that upon the information now available, the cross sectional "between" model is the "least bad" of the models presented, although I do not advocate its adoption. In fact, the "between" model results in costs that are 95 percent attributable; the use of the model, which is known to be subject to error is, therefore, hardly worth the effort.

I recommend, instead, that the Commission reject Dr. Bozzo's study and continue to apply the traditional variability to the ten cost pools in the study. Alternatively, I recommend the "between" model as the "least bad" of the models presented by Dr. Bozzo. I provided OCA witness Thompson the list of those cost pools which should be modified to reflect a volume variability of 100 percent.

C. The Work that Has Been Reviewed Represents the Latest Part of a Major Modeling Effort.

Apparently, Dr. Bradley and Dr. Bozzo on a combined basis have spent approximately ten person years on the issue, and Dr. Bozzo has projected that there would be a significant additional effort involved in the completion of the work. The underlying economic theory is not set forth as clearly as is desired, so it is possible that there would be substantial theoretical modifications in the work as well as the extension of the work to additional activities, additional types of mail processing facilities, additional and/or improved data, and different estimating approaches.

I have discussed the work in terms of some of the criteria for evaluation set out in Appendix F of the Commission's opinion in Docket No. R97-1. By those standards, the work is not yet complete. Nevertheless, we are faced with the distressing fact that substantial effort as well as significant elapsed time has occurred with no production of a final study. I recommend that the Commission and the Postal Service consider the establishment of a working group to discuss, evaluate, and comment on theoretical, data, and modeling approaches in an effort to bring these issues to a conclusion. Obviously such a group would require the honest and effective participation of all of the parties involved.

Whether through a working group or otherwise, there are a number of deficiencies in the work to be addressed. First, the underlying economic assumptions need to be presented in a more comprehensible manner, with particular emphasis focused on assumptions about homotheticity, economic efficiency, networks, and the nature of the function being estimated.

Second, there need to be improvements in the data, particularly as related to the variables QICAP, manual ratio, and capacity utilization. It is important that the relationship of the investment data to the activity being estimated is carefully considered (if the activity approach is pursued). Even if the QICAP variable were not meaningless, it would not measure the level of capital associated with an activity in its current state.

Third, additional explanatory variables may be needed, particularly in terms of the network.

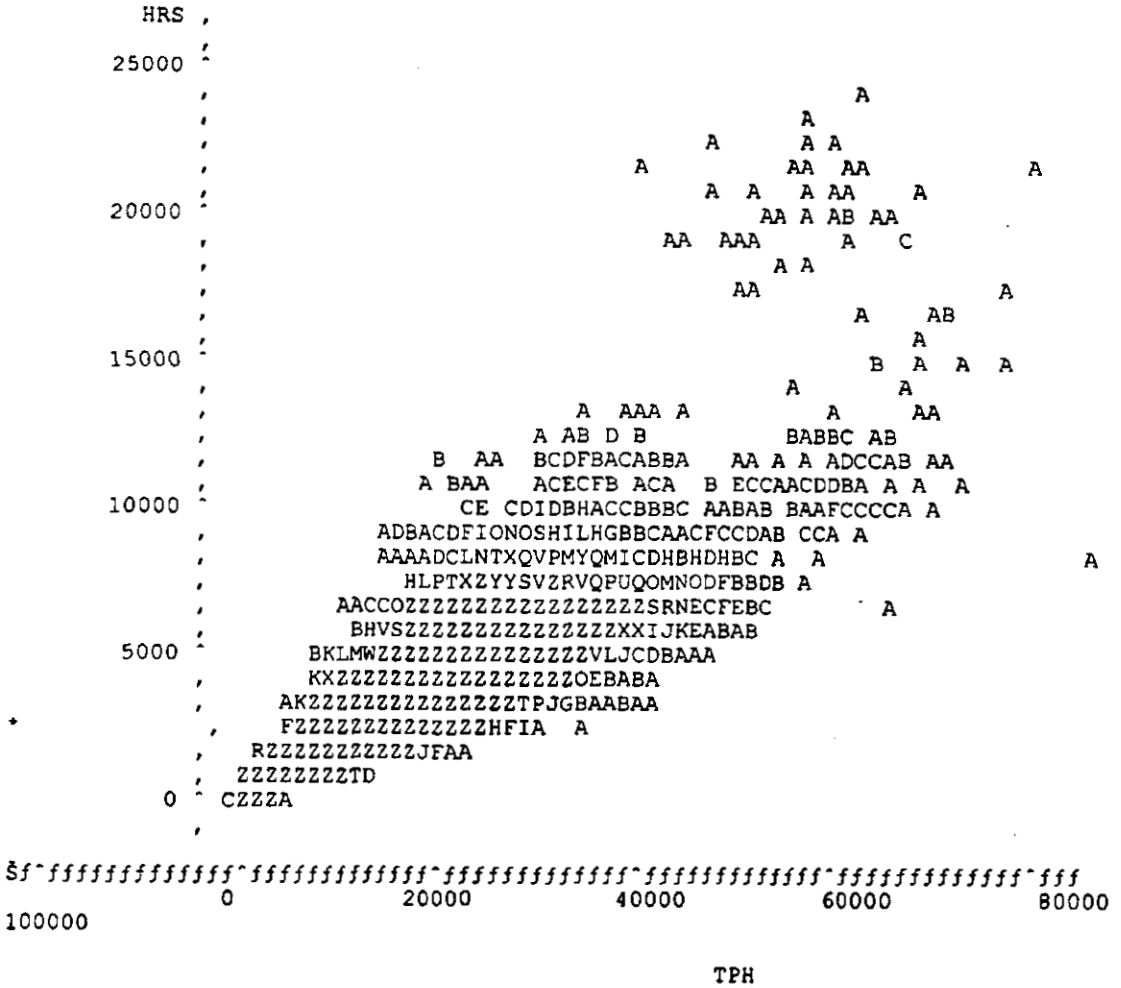
Fourth, recognizing the network aspects and longer run aspects of the mail processing process, the short-run fixed effects analysis presented is unsuitable; a longer-run analysis is needed.

Finally, my comments are based on a four-month examination of Dr. Bozzo's work. This is the necessary consequence of the time constraints of a rate case, but is not adequate from a scientific analysis point of view. Accordingly, I urge the Commission to recommend the establishment of a working group to consider this issue in detail.

APPENDIX

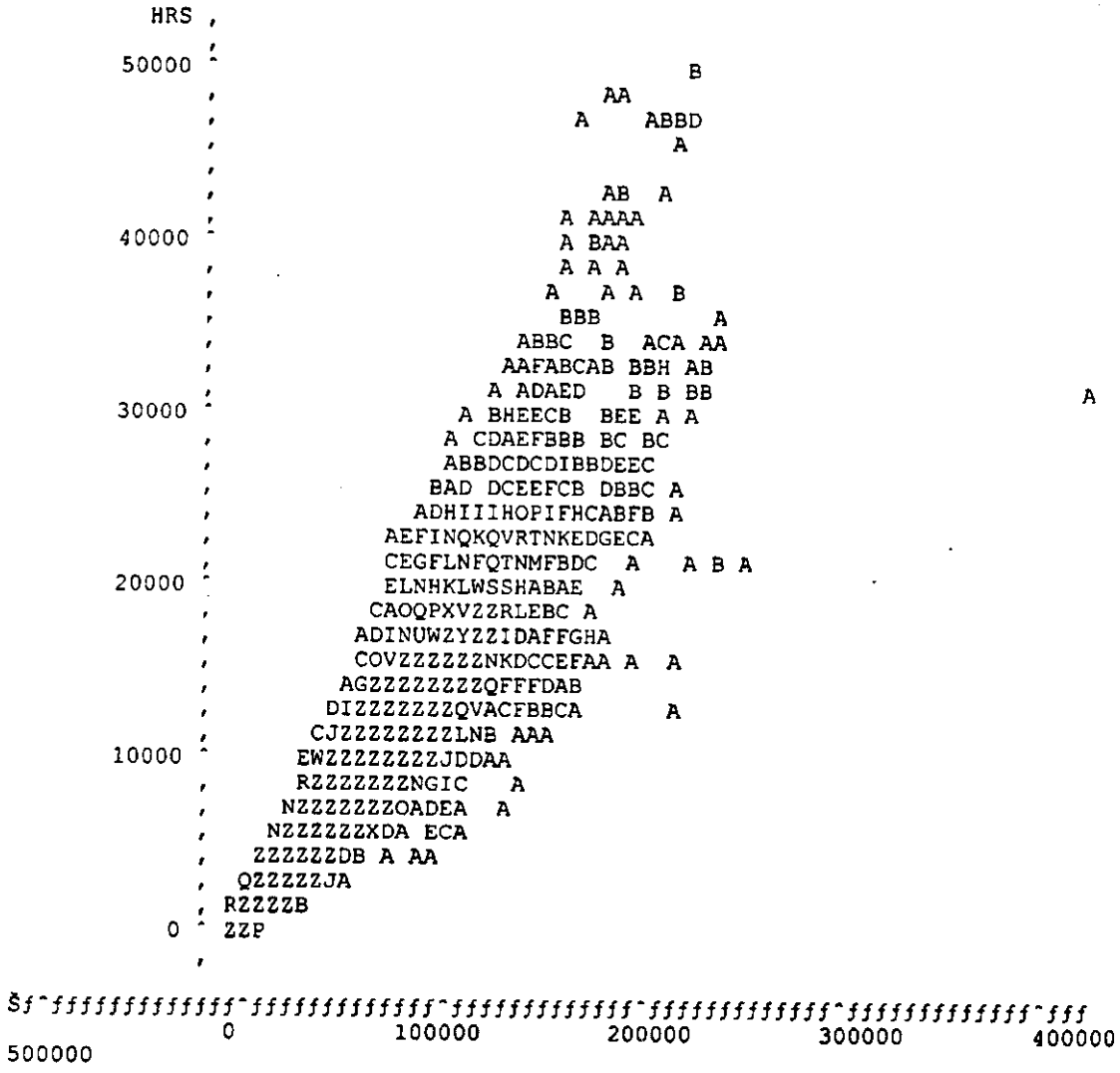
OCR OPERATIONS/ HOURS ON TPH
USING ONLY CONTINUOUS DATA FROM 8801-9613
INCLUDING OFFICES @ LEAST 39 OBS/LAG MODEL
USES 12 AP DUMMIES TO CAPTURE SEASONAL EFFECTS

Plot of HRS*TPH. Legend: A = 1 obs, B = 2 obs, etc.



NOTE: 13796 obs hidden.

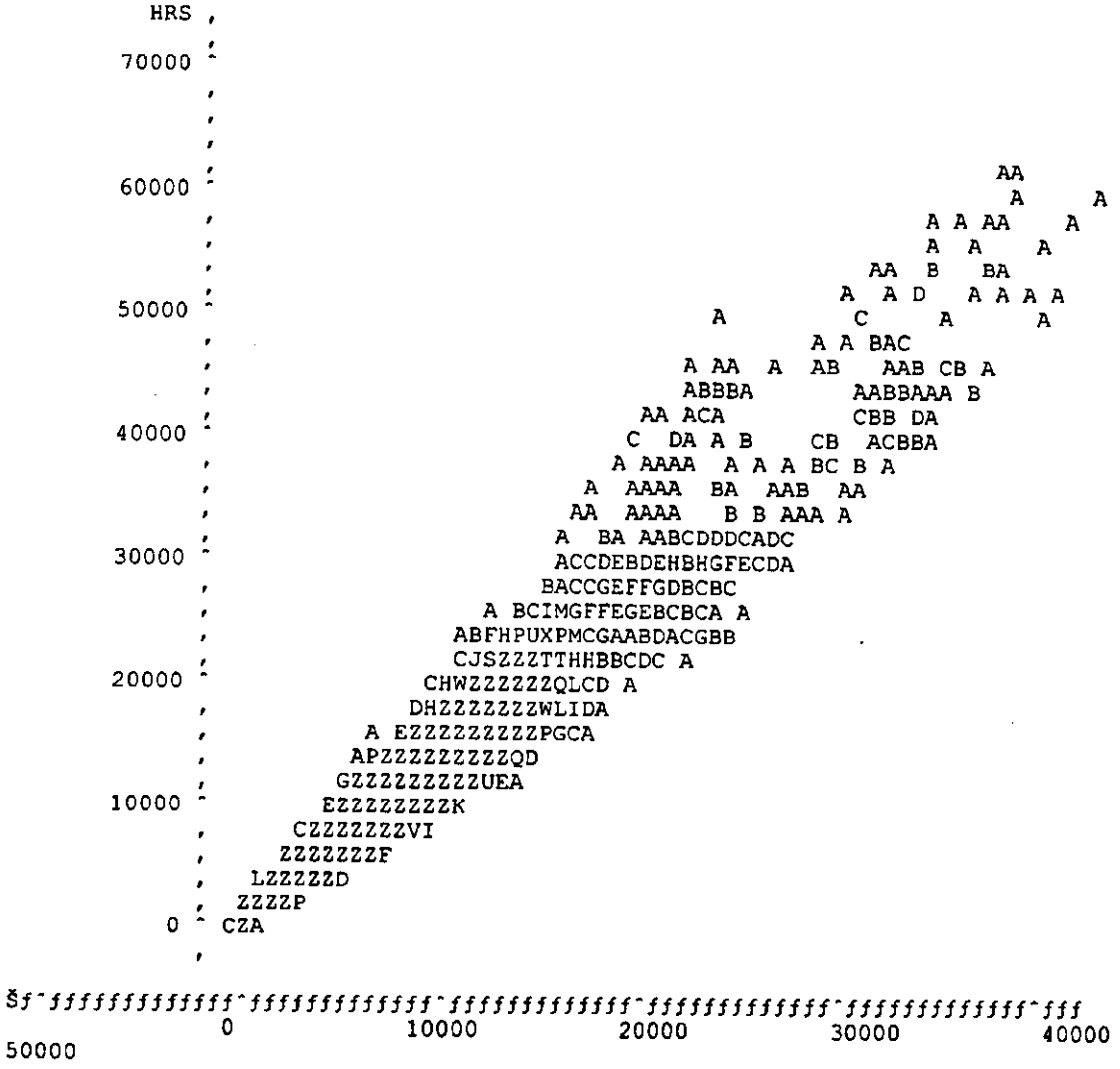
BCS OPERATIONS/ HOURS ON TPH
USING ONLY CONTINUOUS DATA FROM 8801-9613
INCLUDING OFFICES @ LEAST 39 OBS/LAG MODEL
USES 12 AP DUMMIES TO CAPTURE SEASONAL EFFECTS
Plot of HRS*TPH. Legend: A = 1 obs, B = 2 obs, etc.



NOTE: 19005 obs hidden.

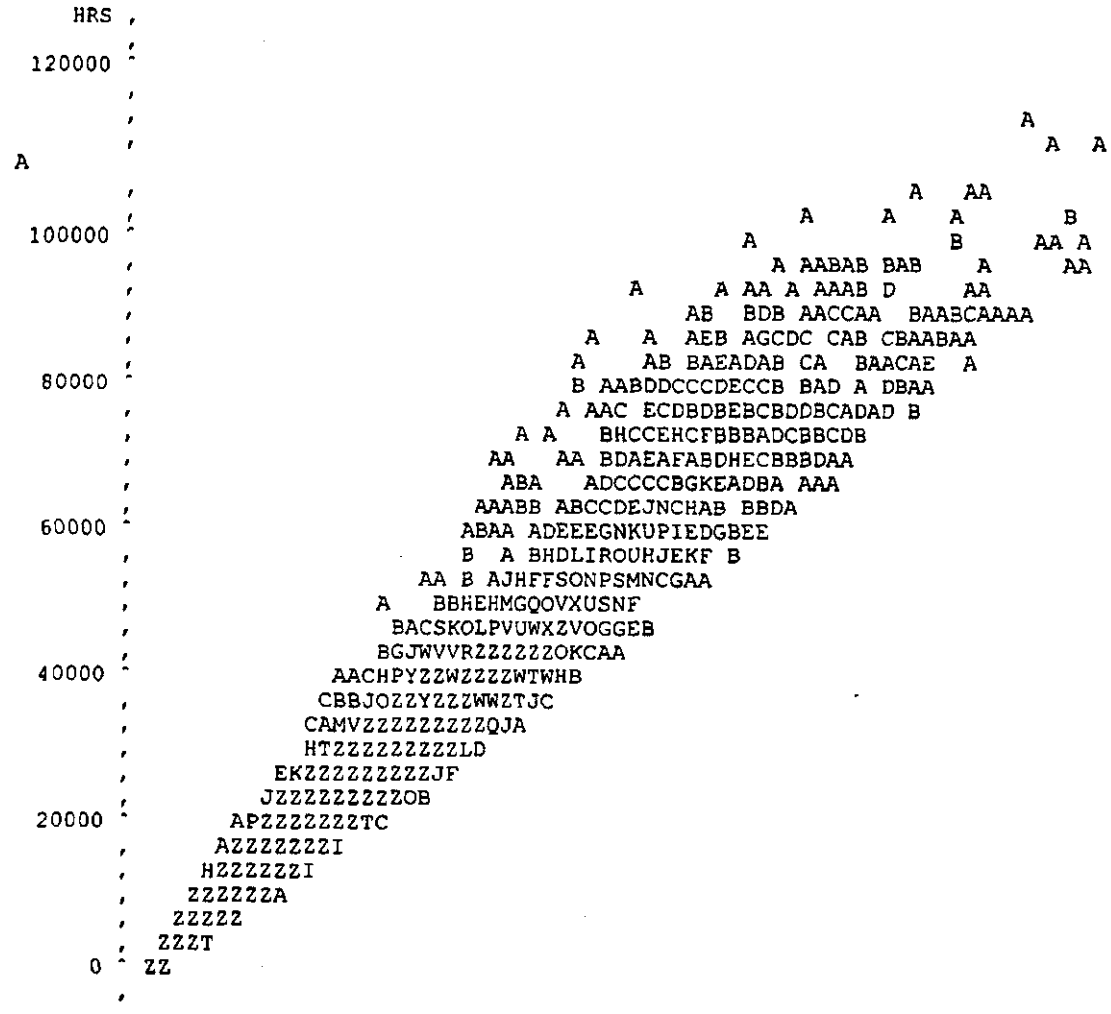
FSM OPERATIONS/ HOURS ON TPH
USING ONLY CONTINUOUS DATA FROM 8801-9613
INCLUDING OFFICES @ LEAST 39 OBS/LAG MODEL
USES 12 AP DUMMIES TO CAPTURE SEASONAL EFFECTS

Plot of HRS*TPH. Legend: A = 1 obs, B = 2 obs, etc.



NOTE: 15019 obs hidden.

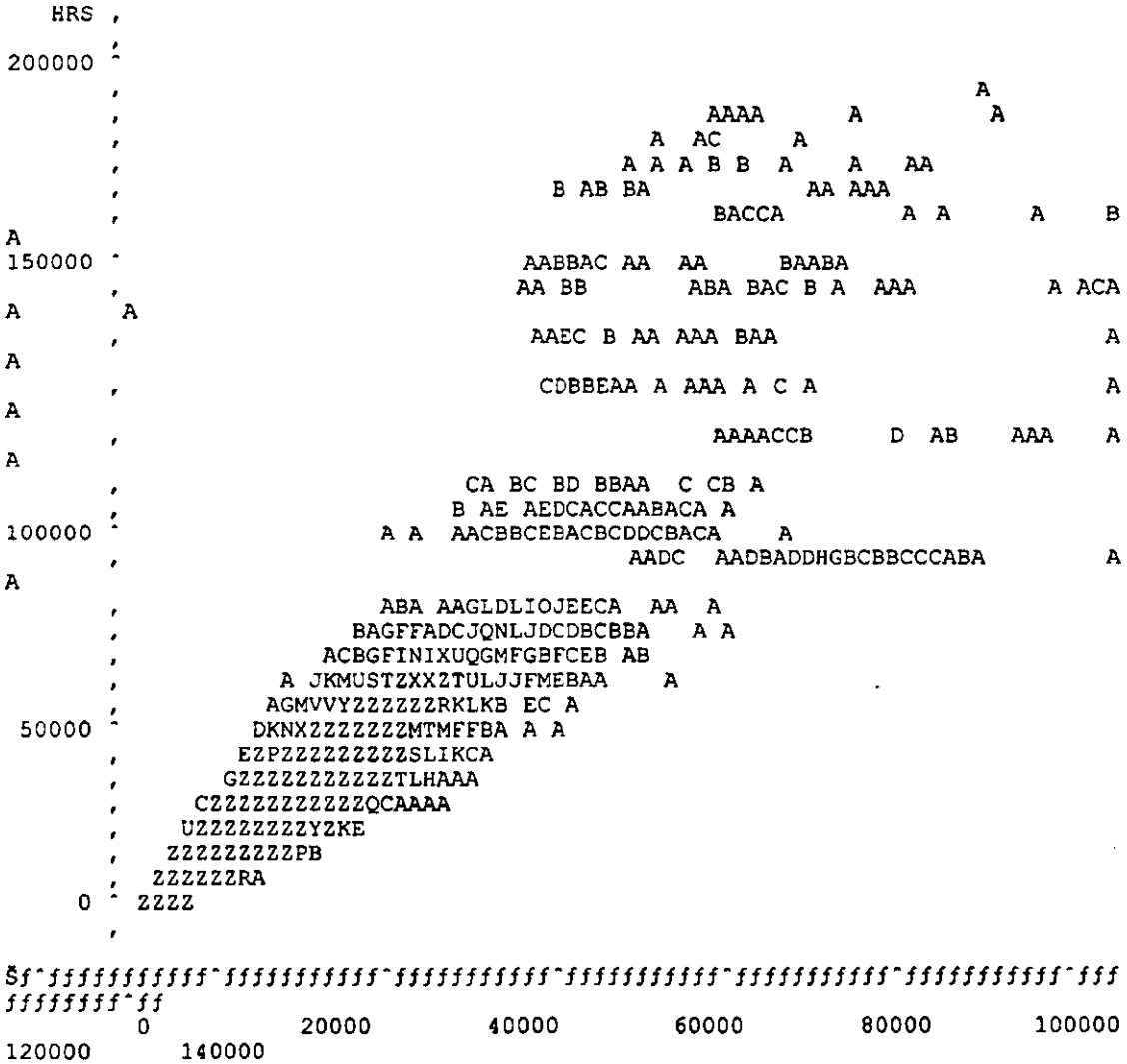
LSM OPERATIONS/ HOURS ON TPH
USING ONLY CONTINUOUS DATA FROM 8801-9613
INCLUDING OFFICES @ LEAST 39 OBS/LAG MODEL
USES 12 AP DUMMIES TO CAPTURE SEASONAL EFFECTS
Plot of HRS*TPH. Legend: A = 1 obs, B = 2 obs, etc.



NOTE: 15313 obs hidden.

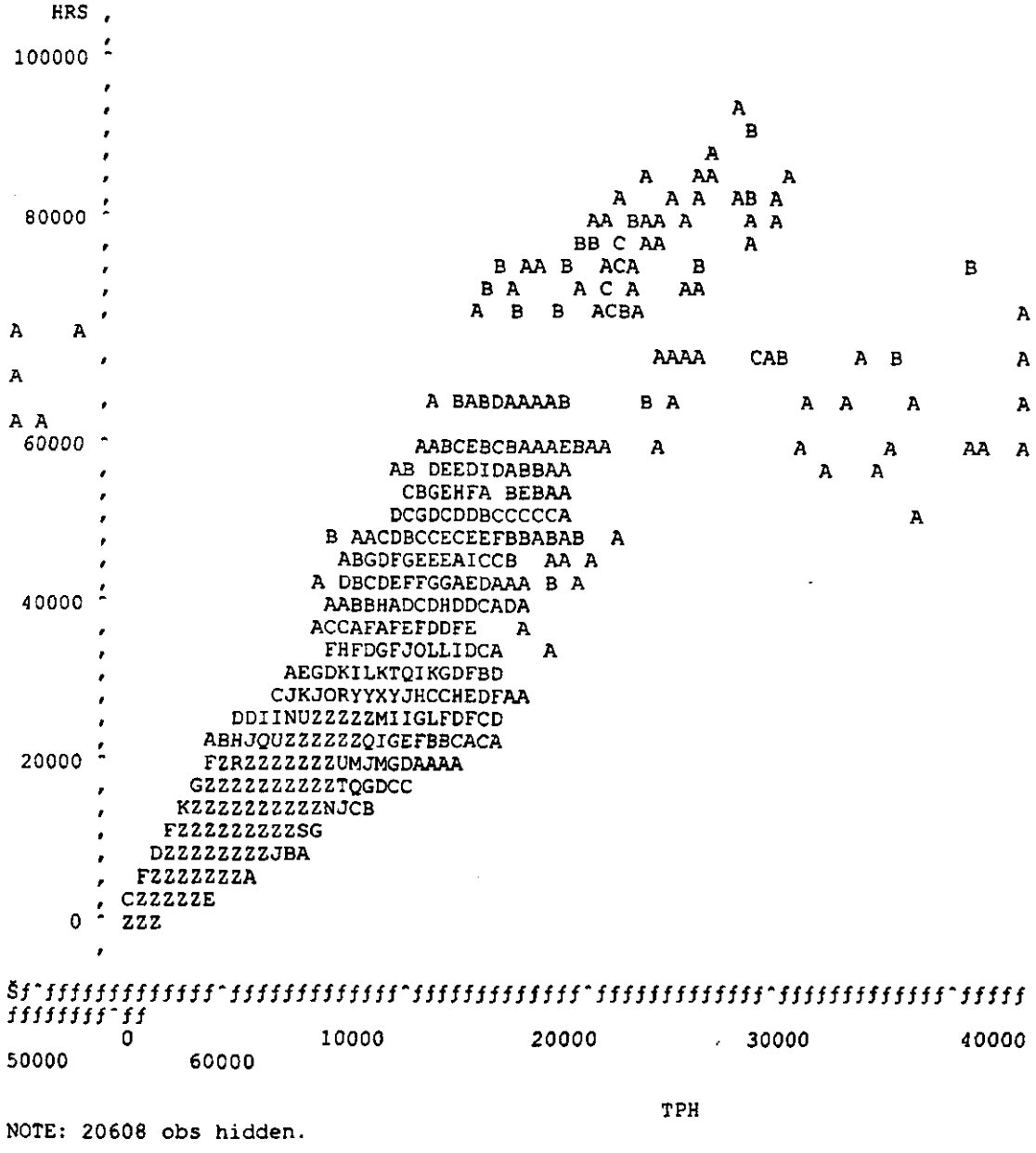
MANUAL LETTER OPERATIONS/ HOURS ON TPH
USING ONLY CONTINUOUS DATA FROM 8801-9613
INCLUDING OFFICES @ LEAST 39 OBS/LAG MODEL
USES 12 AP DUMMIES TO CAPTURE SEASONAL EFFECTS

Plot of HRS*TPH. Legend: A = 1 obs, B = 2 obs, etc.



NOTE: 21328 obs hidden.

MANUAL FLAT OPERATIONS/ HOURS ON TPH
USING ONLY CONTINUOUS DATA FROM 8801-9613
INCLUDING OFFICES @ LEAST 39 OBS/LAG MODEL
USES 12 AP DUMMIES TO CAPTURE SEASONAL EFFECTS
Plot of HRS*TPH. Legend: A = 1 obs, B = 2 obs, etc.



NOTE: 20608 obs hidden.

CHAIRMAN GLEIMAN: Mr. Smith, have you had an opportunity to examine the packet of designated written cross examination that was made available earlier today?

THE WITNESS: I have.

CHAIRMAN GLEIMAN: And if those questions were asked of you today, would your answers be the same as those you previously provided in writing?

THE WITNESS: Yes, with the exception of one minor revision.

CHAIRMAN GLEIMAN: And what is that, sir?

THE WITNESS: That is on USPS/OCA-T4-31, in response at (vi), line 2, change "fixed" to "net".

CHAIRMAN GLEIMAN: Has that correction been made in the packages?

THE WITNESS: Yes, it has, Mr. Chairman.

CHAIRMAN GLEIMAN: That being the case, counsel, if you could please provide two copies of the corrected designated written cross examination of the witness to the reporter, I will direct that they be received into evidence and transcribed into the record.

[Designated Written Cross-Examination of J. Edward Smith, OCA-T-4, was received into evidence and transcribed into the record.]

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, DC 20268-0001

Postal Rate and Fee Changes, 2000 Docket No. R2000-1

DESIGNATION OF WRITTEN CROSS-EXAMINATION
OF OFFICE OF THE CONSUMER ADVOCATE
WITNESS J. EDWARD SMITH
(OCA-T-4)

Party	Interrogatories
Association of American Publishers	AAP/OCA-T4-1-3
United States Postal Service	AAP/OCA-T4-1-3 USPS/OCA-T4-1-51

Respectfully submitted,

Cyril J. Pittack
Acting Secretary

INTERROGATORY RESPONSES OF
OFFICE OF THE CONSUMER ADVOCATE
WITNESS J. EDWARD SMITH (T-4)
DESIGNATED AS WRITTEN CROSS-EXAMINATION

Interrogatory	Designating Parties
AAP/OCA-T4-1	AAP, USPS
AAP/OCA-T4-2	AAP, USPS
AAP/OCA-T4-3	AAP, USPS
USPS/OCA-T4-1	USPS
USPS/OCA-T4-2	USPS
USPS/OCA-T4-3	USPS
USPS/OCA-T4-4	USPS
USPS/OCA-T4-5	USPS
USPS/OCA-T4-6	USPS
USPS/OCA-T4-7	USPS
USPS/OCA-T4-8	USPS
USPS/OCA-T4-9	USPS
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USPS/OCA-T4-15	USPS
USPS/OCA-T4-16	USPS
USPS/OCA-T4-17	USPS
USPS/OCA-T4-18	USPS
USPS/OCA-T4-19	USPS
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USPS/OCA-T4-29	USPS
USPS/OCA-T4-30	USPS

USPS/OCA-T4-31	USPS
USPS/OCA-T4-32	USPS
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USPS/OCA-T4-47	USPS
USPS/OCA-T4-48	USPS
USPS/OCA-T4-49	USPS
USPS/OCA-T4-50	USPS
USPS/OCA-T4-51	USPS

ANSWERS OF OCA WITNESS J. EDWARD SMITH
TO INTERROGATORIES AAP/OCA-T4-1-3

AAP/OCA-T4-1 On page 40 of your testimony (line 12) you state that "In the *long run*, all of the factors of production are variable." With respect to this statement:

(a) Please confirm that in the long run, the factors of production that are variable at the Postal Service include all wage levels and all work rules that are in effect under the Postal Service's existing contracts with all labor unions whose members are employed by the USPS. Please explain in detail any answer other than a confirmation.

(b) Please confirm that in the long run, the factors of production that are variable at the Postal Service include all transportation contracts between the Postal Service and all outside rail, air and trucking firms that now furnish purchased transportation services to the USPS. Please explain in detail any answer other than a confirmation.

RESPONSE TO AAP/OCA-T4-1. (a) Not confirmed. Labor is a factor of production and would be variable in the long run. Work rules are not a factor of production.

(b) Not confirmed. I have not testified on transportation services and am unable to confirm the statement due to a lack of knowledge on the issue(s).

ANSWERS OF OCA WITNESS J. EDWARD SMITH
TO INTERROGATORIES AAP/OCA-T4-1-3

AAP/OCA-T4-2 With respect to the discussion of the economic concept of the long run which is discussed on page 40 of your testimony, please indicate whether you agree or disagree that the "very long run" is a period so long that all of a firm's present contracts will have run out and its present plant and equipment will have been worn out or rendered obsolete and will therefore need replacement. Please identify and explain any area of disagreement with this economic concept.

RESPONSE TO AAP/OCA-T4-2. I disagree. Economics defines the long run and the short run. Neither have any specific reference to time; rather, they define the circumstances under which costs are not fixed. In the case of Postal proceedings, the Postal Service has made references to time periods in the neighborhood of one or several years over which production inputs are not fixed. Accordingly, the long run for segment 3 mail processing costs may be the rate effective time period. Alternatively, such a time period may serve as an approximation of the long run. However, the concept of a "very long run" is not a concept that has been defined in economic theory.

ANSWERS OF OCA WITNESS J. EDWARD SMITH
TO INTERROGATORIES AAP/OCA-T4-1-3

AAP/OCA-T4-3 Please explain fully, on a step-by-step basis, how you recommend the Postal Service should measure its labor costs that are variable over the long run as that term is used on page 40 of your testimony.

RESPONSE TO AAP/OCA-T4-3. In Appendix F, "Analysis of Postal Service Mail Processing Labor Cost Models," in Appendices to Opinion and Recommended Decision, Volume 2, Docket No. R97-1, May 11, 1998, the Commission cited a number of deficiencies in Dr. Bradley's testimony; many of the deficiencies have carried over to Dr. Bozzo's work. These deficiencies and other problems are the subject of my testimony. My recommendations are to correct the problems, with the additional presentation of the underlying economic theory, database verification and/or improvement, the consideration of appropriate variables, and the choice of an appropriate estimation procedure. By correcting the deficiencies mentioned by the Commission, myself, and other witnesses, as appropriate, the Postal Service would be able to measure labor costs that are variable over the long run. Since the design of a study is a major and controlling part of the research effort, the formation of a working group in order to review and comment on issues on a measured and careful basis subject to thoughtful consideration is important.

ANSWER OF OCA WITNESS J. EDWARD SMITH
TO INTERROGATORIES USPS/OCA-T4-1-7

USPS/OCA-T4-1. Please refer to your testimony at page I, line 9. Please specify each regulatory proceeding, other than Docket No. R97-1, in which you gave testimony pertaining to an econometric analysis of panel data, and provide a copy of the written testimony. If there are no such instances, please so indicate.

RESPONSE TO USPS/OCA-T4-1. With the exception of Docket No. R97-1, I have not provided testimony on the econometric analysis of panel data.

ANSWER OF OCA WITNESS J. EDWARD SMITH
TO INTERROGATORIES USPS/OCA-T4-1-7

USPS/OCA-T4-2. Please refer to your testimony at page 13, lines 34 and footnote 14.

(a) Please define the term "equilibrium point" as you use it in the footnote.
(b) Please define the term "facility size" as you use it in the footnote.

RESPONSE TO USPS/OCA-T4-2. (a) The Commission has implicitly referenced the equilibrium point in Appendix F of the Opinion in Docket No. 97-1. (Appendices to Opinion and Recommended Decision, Volume 2, Appendix F, Docket No. R97-1 at 43). For a more detailed exposition see *Econometric Models, Techniques, and Applications* by Intriligator, Bodkin and Hsiao, at page 278 (Michael D. Intriligator, Ronald G. Bodkin, and Chen Hsiao, *Econometric Models, Techniques, and Applications,* Second Edition, Upper Saddle River, New Jersey, Prentice Hall, 1996):

> The equilibrium of the firm in the long run, when both inputs can be freely varied, is at the tangency of an isocost to an isoquant. Only at such a point is output maximized for a given cost or, equivalently, is cost minimized for a given output. The former follows by moving along any one isocost: if at any one point it crosses an isoquant it is possible to increase output with no additional cost--by moving toward the tangency point. Similarly, moving along any one isoquant, if at any one point it crosses an isocost, it is possible to decrease cost while holding output constant--by moving toward the tangency point. The locus of tangency points is the set of possible equilibrium points for the firm; it is called the expansion path and is characterized by the equality of slopes of isocost and isoquant. From the above results on these slopes, the geometric tangency is in fact equivalent to the algebraic conditions (8.2.7), stating that, for profit maximization, the marginal rate of technical substitution must equal the ratio of wages.
>
> The possible equilibrium points along the expansion path of Figure 8.1 indicate at each such point an output, y, from the isoquant, and a level of cost, C, from the isocost. The set of all possible pairs of output and cost along the expansion path defines the cost curve: C = C(Y) *(8.2.14), in this case the long-run total cost curve, since it represents total cost: C = $w_1x_1 + w_2x_2$ (8.2.15) in the long-run situation in which all factor inputs can be varied freely. A *short-run cost curve* is defined using an alternative

expansion path that reflects whatever factors are fixed in any particular short run. An example would be the expansion path defined by the horizontal line at $\bar{x}_2$, where the second input is fixed at this level and the first input is free to vary.

(b) Facility size is defined in terms of the specific isoquant currently producing product.

ANSWER OF OCA WITNESS J. EDWARD SMITH
TO INTERROGATORIES USPS/OCA-T4-1-7

USPS/OCA-T4-3. Please refer to your testimony at page 15, lines 15-18, where you discuss the "random effects" estimator. Do you mean to say in line 18 that the random-effects model assumes that the facility specific characteristics are stochastic (i.e., random)? If not, please explain.

RESPONSE TO USPS/OCA-T4-3. Yes. My paraphrasing of Dr. Bradley's testimony is based on his statement "Alternatively, one could model the facility-specific effects as random events." (USPS-T-14, Docket No. 97-1, lines 24-25 at 43.)

ANSWER OF OCA WITNESS J. EDWARD SMITH
TO INTERROGATORIES USPS/OCA-T4-1-7

USPS/OCA-T4-4. Please refer to your testimony at page 28, lines I-2. Did you perform any quantitative analysis of Dr. Bozzo's data, models, or results to determine whether the "underlying investment series" is actually "unrepresentative of current operations"? If so, please describe the methods and results of your analysis in detail.

RESPONSE TO USPS/OCA-T4-4. An analysis of the models or results would not be indicative of whether the data are unrepresentative of current operations. Instead, I base my comments on a review of USPS investment and investment policies rather than on any particular quantitative analysis of Dr. Bozzo's data, models, or results. It is clear that in recent years there has been significantly increased investment in mail processing equipment, and the Postal Service discusses ongoing investment efforts in this case. It appears that the Postal Service has a variety of activities at mail processing plants in various stages of technological sophistication. One obtains the impression that major savings are being obtained, or are about to be obtained, from new technologies and facilities. Accordingly, an analysis that includes data for obsolete facilities may not be representative of costs to be incurred in the future.

This is an example of an issue whose analysis would benefit from input from USPS experts as well as a review of site specific data on a facility-by-facility basis for the MODS operations. A working group cooperatively focused on the resolution of this issue would be appropriate.

ANSWER OF OCA WITNESS J. EDWARD SMITH
TO INTERROGATORIES USPS/OCA-T4-1-7

USPS/OCA-T4-5. Please refer to your testimony at page 28, lines 5-7. Also please refer to Dr. Bozzo's testimony, USPS-T-I5 at pages 78. line 11 to page 79 and Appendix D, page 152.

(a) Please confirm that the referenced sections of Dr. Bozzo's testimony discusses "the appropriate way, if any, to use data from previous years to evaluate the elasticities [volume-variability factors] for the 1998 Base Year" and present the results of evaluating the elasticities using only the FY 1998 observations. If you do not confirm, please state your understanding of the referenced sections.

(b) Did you perform any quantitative analysis of Dr. Bozzo's data, models, or results to determine whether any relevant discontinuities actually exist and/or to quantify their effects? If so, please describe the methods and results of your analysis in detail.

RESPONSE TO USPS/OCA-T4-5. (a) The statement is confirmed, subject to noting that there are a substantial number of problems in the testimony as well as an incorrect model. An interesting issue for the proposed working group to explore would be the impact of 1999 data on the results of a correctly specified model. This would be an appropriate topic for consideration by a working group.

(b) As stated, I found significant problems with Dr. Bozzo's models, and data are not available to correct the problems. Accordingly, any reestimation would be irrelevant at this time. This also would be an appropriate topic for consideration by a working group.

ANSWER OF OCA WITNESS J. EDWARD SMITH
TO INTERROGATORIES USPS/OCA-T4-1-7

USPS/OCA-T4-6. Please refer to your testimony at page 38, lines 6-7. Please also refer to Docket No. R97-1, USPS-T-14 at page 12, and the Commission's Docket No. R97-1 Opinion and Recommended Decision, Vol. 1, at page 81 (paragraph 3039) and page 83 (paragraph 3043).

(a) Please confirm that Dr. Bradley characterized his models as "cost equations" which he (and the Commission) specifically distinguished from "cost functions" as the latter term is normally used in treatments of economic production theory. If you do not confirm, please explain.

(b) Please indicate your understanding of the Commission's reference, at page 83 (cited above), to Dr. Bradley's need to provide a data set sufficient to "specify cost functions or, more precisely, functions describing the Postal Service's derived demand for mail processing labor time."

RESPONSE TO USPS/OCA-T4-6. (a) Confirmed.

(b) Paragraph 3039 concludes that the Bradley approach lacks a firm basis in economic theory. Deficiencies include the use of a cost equation rather than a cost function, the use of accounting period data that are inconsistent with the operating plan, and, implicitly, a criticism of the short run nature of the study.

Paragraph 3043 of the Commission's Opinion criticizes the data set. The Commission indicated that Dr. Bradley did not "include a sufficient set of explanatory variables to properly specify cost functions." The data requirements associated with a translog cost function, a production function, and a labor demand function are well known; a reference source is Chapter 12 of *Chung's Utility and Production Functions.* (Jae Wan Chung, *Utility and Production Functions,* Blackwell, 1994).

ANSWER OF OCA WITNESS J. EDWARD SMITH
TO INTERROGATORIES USPS/OCA-T4-1-7

USPS/OCA-T4-7. Please refer to your testimony at page 38, lines 12-18 and footnote 47.

(a) Do you contend that formal (mathematical) derivation of the labor demand function cannot be performed? Please explain any answer other than an unqualified no.

(b) Is it your understanding that sources in the economic literature provide and/or discuss the derivation, including (but not limited to) the material cited in Dr. Bozzo's response to OCA/USPS-T-15-56(c), to which you refer in footnote 47? Please explain any answer other than an unqualified yes,

RESPONSE TO USPS/OCA-T4-7. (a) No. The testimony would have been enhanced by providing the derivation of the function, along with sufficient discussion of the appropriate variables, a discussion of the properties of the function, a discussion of the implications of various results under various market conditions, and a discussion of the relevant literature.

(b) Yes, and it would have been appropriate to include the information in Dr. Bozzo's testimony. To be specific, by presenting a derivation of the labor demand function as related to a production function or a cost function, the analyst would set the basis for the consideration of appropriate variables, estimating procedures, and functional type (Dr. Bradley presents the information in terms of a cost function; Dr. Bozzo presents the information in terms of a labor demand function). There is substantial confusion.

A relatively succinct presentation of the translog production, cost, and factor demand function may be found in Chapter 12 of *Utility and Production Functions,* (Jae Wan Chung, *Utility and Production Functions,* Blackwell, 1994). The book also presents an overview of selected studies, including country and industry data (pooled,

ANSWER OF OCA WITNESS J. EDWARD SMITH
TO INTERROGATORIES USPS/OCA-T4-1-7

cross sectional, time series: the associated footnote mentions that a cross-section analysis yields long-run effects, whereas a time-series analysis yields short-run effects), assumptions (linear homogeneity, separability, homotheticity), estimation technique, and results.

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USPS/OCA-T4-8. Apart from those reported in Table 6 of your testimony, did you perform any regression analyses to attempt to quantitatively validate your criticisms of Dr. Bradley's and Dr. Bozzo's methods and/or results, or for any other reason pertaining to your testimony? If so, please provide detailed descriptions of the purpose(s), method(s) and result(s) of your analyses. If not, why not?

RESPONSE TO USPS/OCA-T4-8. Yes. I ran a number of the TSP programs furnished by Dr. Bozzo, and, as expected, obtained identical results. In some cases, I made minor changes in the programs for purposes of experimenting with the application of TSP. Dr. Bozzo has already furnished the output of his programs, and I have no further results.

The Library reference to my testimony reports on a number of other regressions.

Finally, I performed a variety of SAS runs on Dr. Bradley's data as well as a small number of SAS runs on various other data related to Postal Service hours and mail volumes. I did not view these regressions as worthy of reporting or retention.

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USPS/OCA-T4-9. Did you perform any quantitative analysis (including, but not limited to, regression analysis) of the data provided in USPS-LR-I-107 to attempt to quantitatively validate your criticisms of Dr. Bradley's and Dr. Bozzo's methods and/or results, or for any other reason pertaining to your testimony? If so, please provide detailed descriptions of the purpose(s), method(s) and result(s) of your analyses. If not, why not?

RESPONSE TO USPS/OCA-T4-9. I performed a review of the regression equations, but did not perform a quantitative analysis. Quantitative analysis is inapplicable in resolving many of my criticisms:

The database was not adequately examined and verified for accuracy. The MODS database has been shown to be unreliable for these purposes. Additional field checking of the data appears to be necessary. This would be resolved in a data analysis effort with substantial field contact.

Investment and capital data based on the historical data series may be unrepresentative of future operations.

The continued use of the manual ratio is undesirable.

The QICAP variable is defective for application to the analysis.

Capacity utilization may be a cost driver; it is not considered.

The analysis is short term.

Additional explanation and improvement of the underlying theory is needed, particularly as related to operational objectives (i.e., cost minimization, choice of functional forms, homotheticity).

The use of a fixed effects approach is inappropriate.

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There are concerns over the appropriateness of the TPF variable; use of FHP may be more appropriate, for TPF is itself a function of the sorting scheme.

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USPS/OCA-T4-10.

a. Do you contend that none of the criticisms of Dr. Bradley's and Dr. Bozzo's methods and/or results can be resolved with the data provided in the Docket No. R97-1 and Docket No. R2000-1 proceedings?
b. If your response to part (a) is affirmative, please enumerate each criticism and provide a detailed explanation of why you believe resolution of the criticism is impossible. If you respond in the affirmative because you believe additional data are required, please state and justify theoretically your beliefs regarding the nature of the additional data that may be needed.
c. If your response to part (a) is negative, in whole or in part, please enumerate each criticism you believe could potentially be resolved. In each case, please state and justify theoretically your beliefs regarding the methods that might resolve the issue.

RESPONSE TO USPS/OCA-T4-10. (a) Yes, in terms of my criticisms. I am still studying the deficiencies in the studies raised by other witnesses and do not feel sufficiently confident in my understanding of their testimony to answer questions related to their testimony. Other witnesses may best respond to you about their testimony.

(b) Due to the remarkably broad nature of the question, I may inadvertently omit one or more criticisms as related to the data. Accordingly, it may be necessary to provide supplemental criticisms subsequently. Many of the criticisms below do not directly relate to the data, but they do touch on aspects of the data; accordingly, for purposes of comprehensiveness they are supplied:

The database was not adequately examined and verified for accuracy.

The MODS database has been shown to be unreliable for the purposes used. Additional field checking of the data appears to be necessary.

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Investment and capital data based on the historical series may be unrepresentative of future operations.

The continued use of the manual ratio is undesirable.

The QICAP variable is defective for application to the analysis.

Capacity utilization is potentially a cost drive but is not considered.

The analysis is short term.

Additional explanation and improvement of the underlying theory is needed, particularly as related to operational objectives (i.e., cost minimization, choice of functional forms, homotheticity).

The use of a fixed effects approach is inappropriately applied. This is not strictly a data requirement but is provided only for purposes of completeness.

There are concerns over the appropriateness of the TPF variable; a FHP variable coupled with a facility level rather than activity level approach may be more appropriate.

You will find explanations of the above issues in my testimony. I particularly call your attention to questions about the accuracy of the MODS data base, my concern that investment data are not available at the activity level, and concern over the consideration of potentially omitted variables such as capacity utilization. Since the theoretical basis of the study has not been clearly presented, it is difficult to verify specific data items that may or may not be required.

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It should be noted, however, that my testimony has focused on the study presented. Although I have suggested possible improvements, the time frame of an interrogatory response is inadequate for full consideration of data problems and needs. Accordingly, I have advocated the establishment of a working group, which could give careful and considered review to the proper conduct of a study.

(c) Theoretical issues could be addressed without the gathering of additional data. I believe that the best approach would be to convene a working group to review the material in the less adversarial nature of a meeting. I note that the formal interrogatory process is not well suited to the development of the modeling process, and informal data conferences with lawyers objecting to various questions are little better.

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USPS/OCA-T4-11. On page 5 (lines 4-6) of your testimony you define volume variability as "the percentage change in cost that results from a percentage change in volume, holding delivery points and other non-volume factors constant."

a. Would you therefore disagree with the statement: "growth in delivery points must be considered a part of the growth in volume"? If you would not, please reconcile your answer with the quoted passage from your testimony.
b. Please explain your understanding of how a statistical estimation technique such as regression "holds constant" a non-volume factor such as delivery points.

RESPONSE TO USPS/OCA-T4-11. (a) There could be a growth in volume with no growth in delivery points. Conversely, conceivably, there could be a growth in delivery points without a change in volume.

(b) In computing the volume variability, Dr. Bozzo has estimated the multivariate econometric model of hours of labor as a function of TPF and other variables; only the estimator associated with the TPF variable is used in computing the variability. Accordingly, in order to be precise, the statement should be "the percentage change in cost that results from a percentage change in volume".

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USPS/OCA-T4-12. Please refer to your testimony at page 47, lines 3-12.

a. Please confirm that the passage of Dr. Bozzo's testimony you quote at the cited location refers to "cost-pool-level production (or cost) functions." If you do not confirm, please state your understanding of the quoted passage.
b. Is it your testimony that the "investment programs designed to reduce [mail processing] costs" to which you refer would reduce costs in every cost pool? Please explain your answer.
c. Can programs to shift mail processing from labor-intensive (manual) cost pools to capital-intensive (automation) cost pools alter the facility-wide (or systemwide) capital-labor ratios without materially altering the capital-labor ratios at the cost pool level? Provide a detailed justification of any negative answer.

RESPONSE TO USPS/OCA-T4-12. (a) The statement quoted is from Dr. Bozzo's testimony and is used in the same context.

(b) A cost reducing capital investment for a specific activity at a facility would be expected to reduce operating costs. To the degree that activities are part of a network and depend on each other, the investment may have an impact on the operating costs of other activities. It may also be appropriate to model the activities as a joint production, cost, or labor demand function (depending on the function as defined by the analyst).

(c) It would appear that this is a question the Postal Service should be addressing and explaining in detail. Dr. Bozzo did not present detailed data or analysis on this issue. However, based on the very limited information that I have available, I would assume that the answer is yes.

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USPS/OCA-T4-13. Please refer to your testimony at page 47, line 16, to page 51, line 13. Also refer to Dr. Bozzo's response to OCA/USPS-T-15-58, Tr. 15/6362-6364.

a. Do you disagree with Dr. Bozzo's statement, provided in response to OCA/USPS-T-15-58(a) (Tr. 15/6362-63), that "my facility-level capital variable (QICAP) does not make use of the Postal Service's Total Factor Productivity results (i.e., the TFP index). Rather, it makes use of methods developed to measure capital input for the TFP analysis. That is, the relationship between my analysis and the Postal Service's TFP analysis is that they share common methods to develop data on economic input?" If so, please state the basis for your disagreement.
b. Does Dr. Bozzo's statement, quoted in part (a) of this interrogatory, explain the nature of the "references to Total Factor Productivity" you mention at page 48, line 2 of your testimony? Please explain any negative answer.
c. Do you have any evidence that the Postal Service's behavior is described by "output maximization"? If so, please provide all such evidence.
d. Do you believe that the institutional environments in which the Postal Service operates and the Soviet manufacturing industries operated are comparable? If so, please provide all evidence that supports your belief.

RESPONSE TO USPS/OCA-T4-13. (a) This is not strictly a yes/no question. The issues that are open to consideration are whether the TFP index is incorrectly computed (the article and information referenced by Dr. Bozzo led to this conclusion), and whether Dr. Bozzo's work is incorrect (by maintaining that he uses the same methods, Dr. Bozzo sets the basis for the conclusion that the results are incorrect). Although I did not state that he used the TFP index, it appears that the development of the index may involve the use of prices that are incorrect; he states that he used a common method. If he used a common method, it would be desirable for him to clarify whether his method makes use of incorrect prices. Otherwise, it is not a common method.

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(b) This also can not be answered with a "yes" or "no". As can be gathered from my previous statement, I don't believe that Dr. Bozzo's statement adequately addresses the issues.

(c) Yes. The need to increase volume of mail is a very familiar refrain in communications from the Postal Service. For example, in the Postal Service's May *Mid-Atlantic Area Update*, Vice President Henry A. Pankey references the growth of mail volume and revenue growth as one of the three pillars needed to support the Gateway to America's households and businesses. He references a Postal Forum speech by the Postmaster General.

(d) Yes. Although there are significant social and institutional differences between American and Russian governmental philosophies ranging back in historical precedent (*e.g.*, no postmaster has been liquidated for failure to meet plan), in fact, there is significant evidence to suggest that the Postal Service in many ways operates in a manner similar to a state controlled business in a non market economy: these similarities include output maximization, central planning, investment actions that may be sub optimal, and concern over efficiency.

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USPS/OCA-T4-14. Please refer to your testimony at page 24, lines I-10. On page 24 (lines 9-10) of your testimony you state that "[o]ne response [to an interrogatory, at Tr. 15/6387-81 discussed data errors due to commingling of manual and SPBS parcels." At lines 6-7, you state that "[field level data verification appears to be required to provide a sound basis for the analysis."

a. Do you disagree with Dr. Bozzo's statement at Tr. 15/6388 that "the manual parcels observations [from the site in question] do not enter the manual parcel regression sample"? If so, please state the basis for your disagreement.
b. Is it your opinion that the manual parcels data from the site in question was actually erroneous? If not, please state the basis for your belief.
c. Assuming the data could not be reconstructed, what would you propose doing with the manual parcels data for that site? Justify your answer in detail.
d. Do you disagree with Dr. Bozzo's statement at Tr. 15/6387 that "[i]n contrast to the other MODS operations I studied, manual parcels and Priority volumes must be manually logged, so the volume data collection process is considerably more labor intensive than for operations in which volume data are transmitted from equipment or scales via electronic interfaces." If so, please state the basis for your belief.

RESPONSE TO USPS/OCA-T4-14. (a) No.

(b) To the degree that data from two activities are commingled, as indicated by Dr. Bozzo, the data are unsuitable for analysis; whether you term the data *erroneous, unsuitable, misleading, inaccurate,* or any of a number of other terms, the use of such data would be inappropriate.

(c) The absence of data can be a problem. Potentially, one could obtain a biased estimate due to the unavailability of data. A good data collection procedure would begin with careful data collection, appropriate follow up, and, subsequently, the statistical analysis of the data set. Assuming that the data could not be reconstructed, one would need to determine whether the resulting data set was representative of the population of data.

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(d) I do not disagree; in fact, the statement illustrates the importance of implementing the data collection procedures that I advocate.

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TO INTERROGATORIES USPS/OCA-T4-8-16

USPS/OCA-T4-15. Please refer to your testimony at page 68, lines 1-2. With reference to the analysis you present on the previous page, you state that "A modeling approach consistent with the data would be the 'between' model or the pooled model." Did you perform any formal specification test(s) to validate your statement? If so, provide a detailed description of the test method(s) and results. If not, what is the basis for your statement?

RESPONSE TO USPS/OCA-T4-15. I did not perform any formal specification tests to validate the statement. There has been extensive analysis presented comparing the fixed effects, pooled, and cross sectional approaches as presented in the Postal Service sponsored testimony of witness Bradley in the previous case and witness Bozzo in this case. The Postal Service analysis of the regression results has found that the fixed effects approach is preferable in analyzing the cases presented. However, I maintain that the modeling effort as presented by Dr. Bozzo, and previously Dr. Bradley, is incorrect; accordingly, the tests as presented are meaningless.

I have not presented an alternative model of mail processing costs. I have, instead, concluded that a working group is the appropriate deliberative and collaborative forum for the development of the model which could then be presented before the Commission. It is highly unlikely that a model acceptable to all parties would be developed in the four month time frame of a rate case,

particularly in view of the massive efforts which the Postal Service has already devoted to the work and the projected efforts to conclude the effort.

At this time, the "between model" presented by Dr. Bozzo is the "least bad" of the models presented by the Postal Service. Cross section estimates relate to the long run version of many parameters, rather than the short run version relevant for time series studies. In studying long-run elasticities one may use cross-section data, while for purposes of short-run forecasting time-series data may be appropriate.

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USPS/OCA-T4-16. Please refer to your testimony at page 66, lines 24-25, where you state "Dr. Bozzo apparently believes that the multivariate nature of the modeling process makes the bivariate graphs irrelevant."

a. Do you believe that appropriate econometric models for measuring mail processing volume-variable costs would be multivariate in nature?
b. If your response to part (a) is negative, reconcile the inconsistency between your response to part (a) and your claim on page 36 of your testimony that there is at least one variable you believe to be important omitted from Dr. Bozzo's study.
c. Do you disagree with Dr. Bozzo's testimony on the shortcomings of visual analysis, presented at page 60, line 21, to page 61, line 12? If so, please state each point of disagreement, discuss in detail the nature of your disagreement, and provide all evidence that supports your position.

RESPONSE TO USPS/OCA-T4-16. (a) I don't know.

(b) Two important variables for the analysis of volume variability appear to be TPH and hours. On a bivariate basis they seem to be closely associated. Applying the concept from William of Ockham, *Pluralitas non est ponenda sine necessitate* (this translates as "entities should not be multiplied unnecessarily." Put differently, "keep it simple"), also known as Ockham's Razor, one would look for the simplest explanation, and a simple explanation is that there is a very high degree of relationship between the two variables: it is visually compelling.

As the modeling in the case has grown more complicated, the estimated variabilities have declined--but the hours/TPH data still vary together closely. Accordingly, I believe that additional analysis would be appropriate, which is why I advocate the working group.

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(c) There appear to be two major points in Dr. Bozzo's testimony:

1. It is impossible to determine whether any two points represent observations of the same site in different periods, the same period at different sites, or different sites and periods. I agree.

2. Visually fitting a line or curve to a plot is not an adequate substitute for numerical analysis and formal specification tests. I neither agree nor disagree with the statement. Instead, I offer the following observation. The data suggest *a strong relationship* between TPH and hours; Ockham's Razor suggests that the simplest explanation is preferred. I conclude that there is a strong relationship between TPH and costs as presented in the data.

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TO INTERROGATORIES USPS/OCA-T4-17-19

OCA/USPS-T4-17. Please refer to your testimony at page 23, lines 16-17, where you state "The differences between Dr. Bradley's data set and the data set used in the current study are actually quite minor."

(a) Does this statement (i.e., the "data set used in the current study") refer only to the portion of Dr. Bozzo's data set obtained from MODS and provided in USPS-LR-I-107.

(b) If your answer to part (a) is negative, in whole or in part, please specify your understanding of which variables in the data set provided in USPS-LR-I-107 were not present in Dr. Bradley's data set.

RESPONSE TO USPS/OCA-T4-17. (a) Yes. However, please note that I believe that QICAP as currently presented is theoretically flawed. In addition, QICAP as now presented is not at the activity level; this is also a major deficiency. I also believe that additional variables should have been considered.

(b) Not applicable.